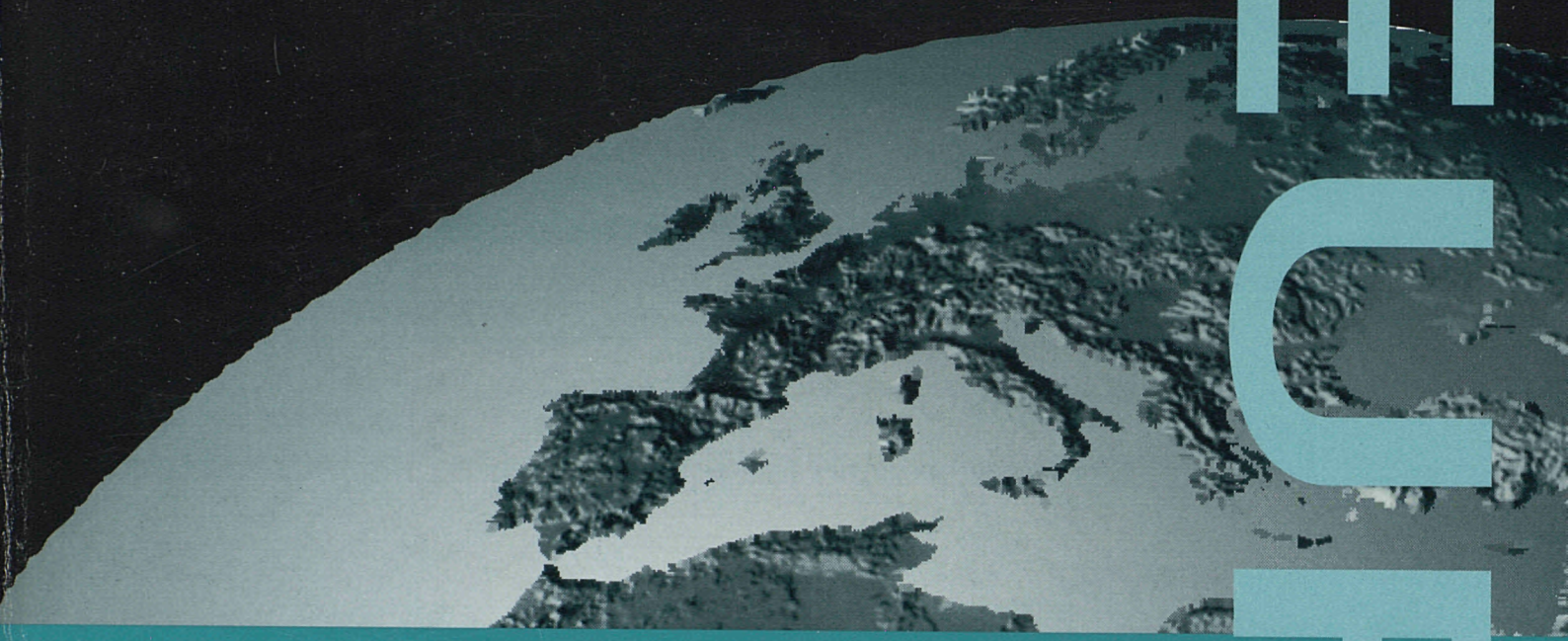
The Single Market Review



EUROPE

SUBSERIES III: DISMANTLING OF BARRIERS

Volume 6:

Currency management costs

The Single Market Review

IMPACT ON SERVICES

CURRENCY MANAGEMENT COSTS

This report is part of a series of 39 studies commissioned from independent consultants in the context of a major review of the Single Market. The 1996 Single Market Review responds to a 1992 Council of Ministers Resolution calling on the European Commission to present an overall analysis of the effectiveness of measures taken in creating the Single Market. This review, which assesses the progress made in implementing the Single Market Programme, was coordinated by the Directorate-General 'Internal Market and Financial Services' (DG XV) and the Directorate-General 'Economic and Financial Affairs' (DG II) of the European Commission.

This document was prepared for the European Commission

by

IFO Institute

It does not, however, express the Commission's official views. Whilst every reasonable effort has been made to provide accurate information in regard to the subject matter covered, the Consultants are not responsible for any remaining errors. All recommendations are made by the Consultants for the purpose of discussion. Neither the Commission nor the Consultants accept liability for the consequences of actions taken on the basis of the information contained herein.

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The Single Market Review

DISMANTLING OF BARRIERS

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SUBSERIES III: VOLUME 6

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List of abbreviations

ARCH	autoregressive conditional heteroscedasticity
ARMA	autoregressive moving average
BEF	Belgian franc
BIS	Bank for International Settlements
BLEU	Belgo-Luxembourg Economic Union
BLMU	Belgo-Luxembourg Monetary Union
DKK	Danish krona
DM	German mark
ECM	error correction model
ECU	European currency unit
EMS	European Monetary System
EMU	Economic and Monetary Union
ERM	Exchange Rate Mechanism
EU	European Union
FF	French franc
FRF	French franc
GARCH	generalized autoregressive conditional heteroscedasticity
GDP	gross domestic product
GRD	Greek drachma
IEP	Irish punt
JPY	Japanese yen
LIT	Italian lira
MAFE	mean absolute forecasting error
NACE	general industrial classification of economic activities within the European Communities
NLG	Dutch guilder
OECD	Organization for Economic Cooperation and Development
p.a.	per annum
PTA	Spanish peseta
PTE	Portuguese escudo
SITC	Standard International Trade Classification
SMEs	small and medium-sized enterprises
SMP	single market programme
UKL	UK pound sterling
USD	US dollar

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Part One: Analysis and Synthesis

1. Summary

The existence of multiple currencies in the European Union (EU) creates transaction costs for exchanging currencies and currency volatility risks for firms and individuals engaged in intra-EU trade and investment. These costs and risks influence trade and investment decisions and lower the Union's welfare. Consequently, multiple currencies in the EU are the most important remaining barrier to European economic integration.

This study addresses three main themes. First, the study provides new estimates of the transaction costs within the existing system of exchange rates in the EU between 1986 and 1995. Second, it attempts to assess how the single market programme (SMP) has affected these transaction costs. Third, the study presents arguments and new data on how and why currency volatility risks may influence intra-Union trade and investment.

At the core of the arguments and estimates presented in this study is a new and up-to-date set of data. Information on both the volume of intra-EU foreign exchange transactions and on unit costs of transactions is required to calculate transaction costs, which are the product of the volume of transactions and unit costs. For the first, this study employs two surveys of foreign exchange market activity by the Bank for International Settlements (BIS) for the years 1992 and 1995. These surveys have not been used in previous estimates of intra-EU foreign exchange transaction flows. A standardized mail survey of firms in the five major economies of the Union was conducted for this study in the autumn and winter 1995–96 to obtain data on unit costs.

Chapter 2 presents an outline of the methodology of the study. It discusses the main evaluative instrument of the study, a mail survey of over 10,000 firms, with 1,621 valid responses, in Germany, France, Italy, Spain and the UK. The object of the standardized questionnaire is:

(a) to identify strategies which firms use to minimize exchange rate risks; and
(b) to determine what the costs are in exchanging currencies, the costs of hedging risks of foreign exchange transactions, and the costs of the personnel and equipment employed by firms for administering foreign exchange transactions.

The questions concerning firm strategies are motivated by academic literature on the response of firms to currency risks. In order to better understand the motives of firm strategies and the reasons for cost changes over time, the mail survey is augmented by 60 personal interviews of firms in six countries. Appendix A provides a copy of the standard English questionnaire for this study, which was developed by IFO Institute with the assistance of two members of the EC staff (from DG XV and DG II). This was translated and/or slightly revised by the partner institutes engaged in this study, Bipe Conseil (Paris), Prometeia (Bologna), Fundación Tomillo (Madrid) and ECOTEC (Birmingham), before conducting the surveys in their countries.

The study contains six extensive Country Reports in Part Two. These contain data from the mail survey and company interviews and an interpretive synopsis, which were provided by the partner institutes. They each contain over 50 standardized tables of the responses to the mail

survey, the results of the 60 individual interviews, as well as an assessment of the representativity of the surveyed firms according to main industry branches and export activity. The Economic and Social Research Institute (Dublin) provided a country report based on ten company interviews and an own survey of Irish firms done in 1994 for Ireland.

A notable finding of this study is that individual firms' strategic responses to currency risks are highly varied. Strategies are conditional upon the economic environment faced by firms, as well as the individual characteristics of firms, particularly firm size. Much of this information is lost by aggregation. This unique micro-data set should inspire future research on the effects of currency volatility. It contains a richer set of responses (real hedging, financial hedging, in-house measures) and characteristics of firms and their environments (firm size, ownership, invoicing patterns, reactions to different types of volatility, etc.) than considered in the usual, aggregate analysis of the effect of volatility on international trade and investment.

Chapter 3 presents the evolution of intra-EUR-12 foreign exchange flows in the period 1986 to 1995, using recent BIS reports (1989, 1992 and 1995). Compared to the present study, a previous EC study (1990) of intra-EU foreign exchange flows was incomplete because previous BIS reports did not include data for Germany and Luxembourg. A first step of analysis in this chapter is the presentation of the total volume of foreign exchange according to individual currencies and trading centres in the EU. From the total volume traded at individual European trading centres the total volume of foreign exchange trading between EU currencies can be inferred. While the EC (1990) study employs an unpublished algorithm for this procedure, the present study employs a clear algorithm for identifying within-EU flows.

This requires an account of the important role of the US dollar and the Deutschmark (DM) as 'vehicle currencies', which are used as a relatively inexpensive medium of exchange between EU trading centres. This involves 'indirect foreign exchange trading' between EU currencies: exchanging from the local currency, or any other EU currency, into, say, US dollars and then immediately exchanging from the vehicle currency into the 'target' currency. In Appendix B, Excursus 1 presents the calculations. Figure B.1 displays the method graphically for the case of the London market. The study is able to check the results of this method with separate data sets obtained for the French market from the Banque de France and for the German market from the Bundesbank.

The total volume of foreign exchange transactions in EU trading centres is then broken down according to market players, into interbank transactions and transactions between banks and non-banks (firms, private households and public institutions) in Table 3.4. Transaction costs are substantially lower for interbank business. Further, the volume of foreign exchange is broken down according to market segment (spot market, outright forward, swap, futures and options) in Table 3.5. A breakdown of the volume of foreign exchange transactions between banks according to the size of transaction is found in Table 3.6. As well, non-bank trading is broken down on the basis of payment habits (transfers, cheques, credit cards, cash, etc.) in Table 3.7. Finally, the total volume of foreign exchange transactions of non-banks is broken down into current account and capital account transactions in Table 3.8. Given that these different breakdowns of the volume of intra-EU foreign exchange flows are associated with different transaction costs, **Chapter 4** presents data on the unit costs of foreign exchange transactions by type. Table 4.1 presents bid-ask spreads for interbank trade of EU currencies and important third party currencies (US dollar and the Japanese yen), obtained from quotations of information services. Between 1986 and 1995 these spreads have declined

strongly for all noted currency pairs, especially for the DM. Transactions using the US dollar as a vehicle currency have become cheaper, but not to the same degree as when using one of the three most important EU currencies (DM, pound sterling, French franc) as vehicle currencies.

Tables 4.3, 4.4 and 4.5 show that there are substantial differences in the unit costs of exchanging small or large sums. This is true for non-bank business for current account and capital account. In addition, there has been a significant change in the size structure of costs between 1986 and 1995. The relative costs of exchanging large sums have decreased substantially. Given the data on the different size structures of transactions, the unit costs of average transactions can be calculated. While unit costs are – for one market side – around 0.1% for interbank business, they rise to 0.25% for capital account transactions and to 0.5% for current account transactions in 1995. The cost differences are largely dictated by the different size structure of transactions. As indicated in the tables, unit costs have been declining significantly since 1986.

The IFO questionnaire provided new information on unit costs of banking charges for exchanging currencies, for hedging transactions and of other foreign exchange administration costs (personnel and equipment). The survey also provided data on the additional time period required for payments in other EU currencies, compared to local currency transactions. This information is presented in Table C.1 in Excursus 1 of Appendix C, Tables 4.6, 4.8, 4.9, and 4.10. For the EUR-12 it is estimated that bank charges and hedging costs as a percentage of foreign trade have been declining since 1986. The opportunity costs of additional transmission times for transfers to EU currencies has also been decreasing over this time period. On the other hand, personnel and equipment costs have risen slightly over time for the EUR-12. Of interest is the substantial variance of unit costs and and unit costs changes between the five countries of the survey. These are analysed in Chapter 5.

The cash trade is the most expensive part of foreign exchange transactions, as any traveller will know. Bid-ask spreads are largest for exchanging foreign coins and notes (see Table 4.7). For the EUR-12 on the average, it is estimated that these spreads have increased substantially (+20%) since 1989.

Table 4.11 presents the results of Chapters 3 and 4. The transaction volumes identified in Chapter 3 are multiplied with the unit costs estimated in Chapter 4 to obtain total transaction costs. Transaction costs for intra-EUR-12 foreign exchange management are presented for the years 1986 to 1995 in detail and in the aggregate. New in the list of arguments is the point that the costs of interbank EU-currency transactions on own account should be added to non-bank transaction costs. Total transaction costs are made up of four main types of transactions: interbank transactions, non-bank transactions except cash trade, cash trade, and company internal costs. The sum of transaction costs amounts to roughly 1% of total EUR-12 gross domestic product (GDP) in the years 1986 to 1995. In an alternative world of complete EUR-12 monetary union these costs would fall away and the Community's economic welfare would increase by an equivalent amount. This new estimate of the relative size of transaction costs to GDP substantially exceeds a previous EC (1990) estimate of 0.4%.

The results in Table 4.11 have been influenced by two fundamental forces. Intra-EU transaction volumes have increased substantially because of increasing market integration in the EU. Given constant unit costs of transactions, this positive integration effect will result in

a rise of total transaction costs: in other words, the more effective the SMP has been, the larger the rise in transaction costs. On the other hand, we find that unit costs have declined over this time period. In Chapter 5 it is argued that capital market deregulation and the free movement of capital ushered in by the SMP have decreased bank charges substantially. The decline in unit costs will, *ceteris paribus*, decrease total transaction costs. The effects of the SMP on total transaction costs, therefore, seem to have cancelled each other out over the last ten years. This is a reason for the relative constancy of the ratio of transaction costs to GDP in the EU between 1986 and 1995.

Of course, unit costs have also declined world-wide because of global capital market competition and technical change. But unit costs for personnel and hedging also have risen because of the rise of currency volatility in the EU and within the group of countries participating in the Exchange Rate Mechanism (ERM), since the exchange rate crisis in the autumn of 1992. What has been the effect of the SMP on unit costs, net of the effects of world-wide capital market trends and changes of currency volatility in the EU since 1992? **Chapter 5** addresses this question and attempts to provide an answer. It argues that a disaggregated analysis helps to identify the impact of the single market as opposed to the impacts of other factors. Figure 5.1 models the impact of different forces on unit transaction costs. Because there is a common impact of world capital market influences on all EU countries, the analysis of unit transaction cost differences between countries factors out global influences. By disaggregating the analysis into different types of costs, it is easier to separate out the impact of the single market from changes in currency volatility. It is expected that changes in volatility do not affect bank charges for exchanging or hedging currencies. Instead, volatility should affect personnel costs and the decision to hedge or not.

Table 5.1 presents a summary of currency volatility levels and trends for the five major EU currencies since January 1985. Currency volatility is here defined as the standard deviation of the daily percentage change of the bilateral exchange rate over the periods analysed. Appendix E contains tables and graphs of the daily and monthly volatility experiences of six EU currencies since 1985. The rise in volatility of the Italian lira has been the most substantial among the major currencies.

Tables 5.2 and 5.3 present information on the degree of capital market imperfection existing in eight European countries in 1988. The possible reduction of prices in 16 financial products or services through the completion of the single market defines capital market imperfection. This change was greatest for Spain, which is followed by Italy, France, Germany and the UK. These ranks were used in the subsequent analysis of unit cost data obtained from the country mail surveys (see Tables 5.4, 5.5, 5.6 and 5.7).

The hypothesis to be tested in this analysis is, first, that the SMP of deregulating capital markets is not instantaneous and that a high level of capital market imperfection and high costs charges in 1994. Second, it is expected that where *ex ante* imperfection levels were high, the impact of the single market on bank charges was strongest. Thus, intercountry patterns of cost declines should be largely determined by differences in the degree of previous capital market imperfections and by the speed with which they were eliminated. It is assumed that in the *anti-monde* without the SMP's First and Second Directives for Co-ordinating Banking Law and the Directive for the Complete Liberalization of Capital Movements no such cost declines would have occurred. The important Second Banking Directive of 1989 set out the principle of the right of banks to trade financial services and to establish branches throughout

the EU, on the basis of a single authorization or 'licence' from their home country supervisor. The Directive liberalizing capital movements of 1988 was of outstanding importance because it required the dismantling of all barriers to capital movements in the EU.

The level of bank charges in 1994 and the patterns of cost changes are in line with expectations raised by the previous hypothesis. Spain has the lowest percentage of responding firms with the lowest category of bank charges (37% of responding firms, weighted by exports) versus 74% of responding firms in the case of the UK. The other countries have responses which fall between these two. The reported cost declines since the late 1980s in this group of five countries are also correlated with country ranks of the degree of capital market imperfection in the late 1980s. Interestingly, a rise of bank charges is reported in both Germany and the UK by 32% and 30% of reporting firms, respectively.

As is to be expected, there is a clearer association of personnel costs with volatility than with the degree of capital market imperfection. Unit costs for personnel and equipment increased since the late 1980s and these increases are clearly correlated with the ranking of currencies according to the percent increase in volatility after 1992.

The analysis of hedging costs is complicated by the fact that both single market effects and volatility changes have an influence on those unit costs. The pattern of cost decreases found among the five countries is clearly associated with the imperfection ranks. However, cost increases have been identified in the case of Germany where 36% of responding firms state that their costs have risen. Personal interviews in German firms clarify this point. Whereas many German firms did not hedge transactions within the stable ERM currency group before 1992, after 1992 they do.

Appendix D also reports the results of the regression of the different types of unit costs on the volume of foreign trade and the direction of trade, as well as other variables (see Tables D.1, D.2 and D.3). The most noteworthy result concerns the size of the estimated elasticity of bank charges to the volume of the firm's foreign trade. In the two countries where capital market liberalization and deregulation is strongest, in Germany and the UK, this elasticity has a substantially higher absolute value than that found in the three other countries analysed. The estimated elasticity of -.2 indicates that with a 10% increase in the volume of foreign transactions a firm's unit bank charges for exchanging currencies fall by 2%. In the more competitive markets in Germany and the UK large firms have greater cost advantages than in Italy or France. The larger elasticity in the previous countries is corroborated by the previous finding that a significant number of German and UK firms (and among them especially the smaller firms) stated their costs had increased. This could well be the case in a banking environment where large firms can demand low charges and banks raise charges on small and medium-sized firms in order to cover costs or maintain profit margins.

Chapters 6 and 7 contain material which is relevant to the third main theme of the study: How does currency risk affect the operation of the single market? This question is answered in two ways, by an indirect argument and a direct argument. **Chapter 6** provides an indirect way by engaging in a literature survey of foreign exchange rate volatility and risk and their effect on corporate strategies, trade and investment flows in general. Should there exist any generally valid theoretic and empirical lessons of these effects, then they should also operate in the single market. The chapter surveys theoretical literature of the effect of exchange rate risk on trade and investment and the empirical literature of roughly the last ten years. Studies of the

global trade of countries and groups of countries, of bilateral trade, of sectoral trade are presented. The impact of exchange rate risk on traded goods prices and on direct investment are also discussed. The outcome of the chapter is that there exists neither a generally acceptable theoretical effect of currency risk nor an empirically uncontroversial impact of exchange rate risk on trade and investment.

The empirical results also differ according to the definition of risk employed. The effects of short run exchange rate variability are increasingly thought to be less important and significant than the effects of exchange rate misalignment. However, there is a new definition of risk in the financial literature, known as conditional volatility – also known as the ARCH (autoregressive conditional heteroscedasticity) model – which takes account of volatility clustering over time. Because it is better in predicting future volatility, the use of ARCH refines the empirical measure of risk, the unexpected price change. Nevertheless, an important recent study of risk and trade in this mode does not come to new results. Rather, it seems that up-to-date econometrics, which take account of the existence of unit roots in the variables of the usual export equation, may be more important than the use of this novel definition of exchange rate risk. Revised conditional volatility measures have also been recently used to redefine exchange rate misalignments with surprising results. It may be that the employment of such measures in export equations will generate new insights. Appendix F provides a short summary of the measurement of risk in recent financial literature.

Chapter 7 presents new direct information on the effects of currency risk on trade and investment. This is obtained by our mail survey responses of over 1,600 firms in five European countries in which firms were asked with which strategies they respond to exchange rate variability. Although the majority of firms in these countries state that their strategies to minimize exchange rate risk are a result of concern with longer than quarterly fluctuations, firms in Italy and Spain state that shorter run volatility is their primary concern.

Firms in all five countries have a large, individually variegated repertoire of strategies which are grouped into real hedging, financial hedging and in-house measures. The most important strategy by the majority of firms was financial hedging. In general, the larger the firm, the more often this strategy is chosen above the others. The package of in-house measures was the next most frequent response. This involves pricing policy, increased invoicing in local currency, among others.

Real hedging strategy, i.e. a reorientation towards the home market, redirection of exports and imports away from volatile currencies, relocating production abroad, was the least frequent response. This strategy choice is a direct indicator of the real effects of currency risks in the single market. A significant group of firms respond that this is an important strategy, especially in Germany and France. Further, it is notable that small and large firms have different real strategies; large firms re-locate production abroad, small firms re-orient their trade and sales to the home market. However, this pattern is not a general one; large Spanish firms tend to have different real strategies than large German firms. The different country experiences are discussed in this chapter, as well as in the separate country reports. The task of generalizing was made difficult by the large inter- and intra-country variances in the choice of strategies.

Chapter 7 also summarizes information obtained by personal interviews in the five major European economies. The object of the interviews is to understand the reasons for the choice

of risk minimizing strategies and the reasons for changes in transaction costs. An important insight was provided on the motivation for foreign direct investment. Whereas in a number of instances firms do state that avoidance of currency risk plays a role, in all such cases this reason was always secondary to the primary reason: proximity to market.

2. Methodological approach

2.1. Overview

Seven main instruments are used to conduct the study in the most comprehensive and most efficient way.

(a) The main evaluative instrument is a postal survey of a representative sample from manufacturing, service and construction and building industries in France, Germany, Italy, Spain and the UK. The survey is supplemented by case studies in these countries. The sample covers over 10,000 variously sized companies. The firms are queried as to the significance of individual strategies against exchange rate fluctuations in the real and financial areas as well as to the costs of various financial safeguarding measures.
(b) The case studies take the form of 60 personal interviews in six Member States: France, Germany, Italy, Spain, the UK and Ireland. Included are multinational companies, small and medium-sized firms from the manufacturing and the service sectors.
(c) Extensive investigations of the theoretical and empirical literature have been made to establish the study on a sound basis.
(d) An interview was held at the Bank for International Settlements (BIS) to obtain deeper insights into foreign exchange streams and the newest survey.
(e) For quantifying the exchange rate risk, we calculated the standard deviation of the daily and monthly exchange rate movements between 1985 and 1995. The dimensions were estimated for the nominal bilateral exchange rates of France, Germany, Ireland, Italy, Spain and the UK *vis-à-vis* all individual EU Member States and – for comparison – *vis-à-vis* the US dollar exchange rate.
(f) An *antimonde* model was created to compare financial costs accruing because of different European currencies in the 'single-market EU' and the 'non-single-market EU'. In the *antimonde*, many costs would arise much more intensively than in the 'single-market EU'. For example, the validity for cross-border money transfers would be longer and the administrative costs for such transfers would be higher. In the *antimonde* scenario all these costs are broken down and evaluated.
(g) The IFO databank, which includes all data from the German Bundesbank, has been used intensively to obtain data. The expertise of the Banque de France provides a matrix of foreign currency payments by EU country in France between 1985 and 1994.

2.2. The questionnaire

The object of the written survey is, on the one hand, to quantify and analyse the strategies which companies use to minimize exchange rate risks, and, on the other, to determine transaction and exchange rate hedging costs incurred when currencies are exchanged. Special emphasis is placed on the changes brought about by the EU single market. When the questionnaire was drawn up, it was necessary to compromise between:

(a) the need to obtain as much and as detailed information as possible; and
(b) the need not to overtax respondents either in terms of the time required to complete the questionnaire, or in terms of the answerability of its questions.

Since the intention was to test quite particular hypotheses, the so-called closed type of question (Rogge, 1981) was chosen, i.e. for each question quite specific answers were already provided. Most groups of questions also had supplementary questions of the so-called half-open type, i.e. under the heading 'other', companies could give additional information. In addition to simple choice of characteristic ('important' or 'not important', and 'often' or 'not so often'), and the possibility of giving multiple responses to questions, respondents were further invited to supply quantitative information.

2.2.1. Theoretical background of the questionnaire

Theoretical considerations and empirical research outcome dictated that for the purposes of elucidating 'hedging strategies' the following questions were asked in the questionnaire (for details see Appendix A).

Questions I and II

The questions under I and II ('Characteristics of the firm' and 'Foreign trade links') had to be included in the questionnaire for a wide variety of reasons. There is empirical evidence that the choice of risk-averting strategies differs according to the size of a company and to the extent of its foreign trade relations (I.1–3). The same might also be true if there are different degrees of regional emphasis in the foreign trade relations (II.1). Even within the EU there are and have been both relatively stable and relatively volatile exchange rates between individual currencies.

In the context of the question of the ways of hedging against exchange rate risks, company invoicing practices (II.2) play a role to the extent that direct currency risk can be quasi-automatically eliminated if export and import transactions are billed in local currency. When this happens, assets and liabilities are incurred only in the company's own currency, which does not mean, however, that the currency risk is ruled out in every case.

The question of whether a company has production facilities abroad (II.3a) is important to the extent that previous studies have shown that diverting investments abroad as a way of hedging against exchange rate risks seems to be more an option if the company already has branches abroad and is seeking only to increase capacity or to better utilize existing capacity.

Even if a company supplies markets abroad through its own distribution offices (Question II.3b) and moreover invoices in DM, exchange rate risk still remains in the business as a whole and needs to be hedged accordingly.

Question III

The questions of Part III of the questionnaire were found in the theoretical and existing empirical literature as being the main risk-averting strategies:

(a) Increased domestic market orientation? This question is derived from the hypothesis that increasing risk diminishes total utility of activities and therefore leads to a reduction of output or exports (de Grauwe, 1988, and others. For details see Section 6.2).
(b) Geographic reorientation of company exports or imports to/from countries with more stable exchange rates? This question is derived from the hypothesis that risk averse firms do not necessarily redirect exports from foreign markets to the home market but

(as a further possibility of reaction) have the option to shift exports and imports among foreign markets (Coes, 1979).

(c) Shifting production facilities abroad? There is empirical evidence that relocation of production plants abroad is a possible strategy to hedge against exchange rate risk (v. Neuman-Whitman, 1984; Hardy and Herrmann, 1988).

(d) Financial hedging measures? The possibility to hedge exchange rate risk by financial measures may be one of the reasons why empirical studies in many cases failed to find a statistically significant impact of exchange rate variability on international trade flows ('separability' approach; for details see Section 6.2).

(e) In-house measures?

(f) Other strategies, e.g. formation of strategic alliances, use of subcontractors in third countries?

Question IV

On account of the variety of possible financial and company-internal hedging measures, the two questions relating to such measures were further subdivided (see IV.2 and IV.4). Individual questions were sifted out of the literature and from personal interviews with companies carried out during an earlier survey (Herrmann, 1988). In order to gain an insight into the role of costs, enquiries were made as to the reasons why a particular form of financial hedging should be chosen (IV.3). Given that short-term exchange rate volatility conceivably triggers hedging reactions that are different from those caused by longer term or by shorter run exchange rate fluctuations, enquiries were made as to how these different forms of exchange rate risk bear on the choice of hedging strategy (III.2).

Question V

The group of questions dealing with transaction costs (V) is successively subdivided to ensure that respondents consider as many cost components as possible associated with managing different currencies – direct exchange costs, hedging costs and company-internal costs. Thus companies are asked to indicate transaction costs incurred externally (through banks) (V.1) as well as internal staff and equipment costs incurred managing different currencies (V.2). In addition, there are questions about 'implicit costs', which can arise because of lengthy credit transfer times (V.4), as well as questions about the possible financial hedging costs incurred by companies (V.3).

In this group of questions we have sought continually to elucidate the effects of the EU single market, first, directly, by asking whether since the advent of the single market in the late 1980s costs have decreased, and second, indirectly, by asking whether costs have decreased compared with trade with non-EU areas.

2.2.2. Sample of the survey

The IFO basic sample

The German survey sample is composed as follows. The starting point is a sample drawn up for the twice yearly IFO investment survey. This questions some 9,200 firms, which respond regularly. The industrial sectors covered include industry (5,000 companies), trade (3,500 companies) and building and construction (700 firms). Ideally, the sample should reflect the structure of the German economy when viewed in terms of the two criteria:

(a) sectoral classification (as defined by the NACE code); and
(b) size (whereby size classification is determined by the number of employees).

Other criteria play no part in the composition of the survey sample. However, in actuality, some individual sectors and large companies are disproportionately weighted in the sample, if the sample is compared with the structure of the German economy. The reason for this is that participation is voluntary, and companies in some sectors and large companies are more inclined to take part in the survey than others.

The IFO 'foreign trade sample' – the criterion for the EU study

From this sample the EU project selects only those companies which engage in foreign trade. They number approximately 1,700. Ideally, these firms should represent that part of the German economy which is also involved in foreign trade – judged by the criterion of sectoral classification. However, our 'foreign trade sample' also has companies from some sectors which are over-represented, namely from sectors where companies are more prepared to take part in surveys.

As in many other countries, German foreign trade statistics make no distinction in terms of company size, which is why company size cannot be taken as a criterion for structuring the sample. The firms in our sample conduct business with all parts of the world, not just with EU countries.

Nor are any other criteria used for structuring the sample, for instance giving equal prominence to both importing and exporting companies. No minimum quotas are set for a company's export or import activities. Rather, companies decline to take part in the survey pragmatically, of their own accord, if they feel that they are only 'marginally' involved in foreign trade. Multinational corporations are included in the sample (even if their head office is abroad), provided that they have a production centre in Germany.

The 'foreign trade sample' of our EU partner institutes

In order to create comparable samples both in Germany and in the countries of our EU partner institutes for our study, the following procedure is appropriate. Each partner institute draws up a 'foreign trade sample' which reflects – at least very broadly – the relative significance of the individual trade sectors. It suffices that the economic sectors are representative only at the highest level of classification. Thus, in industry, the companies chosen need only, roughly, reflect the significance of foreign trade of the six so-called 'main groups'[1]. Individual sectors do not need to be represented according to their foreign trade activities. The sectors 'building and construction' and 'trade' should also be surveyed, if possible.

In addition, the sample should reflect to some extent the regional structure of foreign trade as a whole. But in no case should only those companies be considered which exclusively or mainly trade within the EU. The sample must be of the agreed size (at least 1,500 questionnaires).

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[1] Basic materials industry, iron, steel and non-ferrous metals industries; mechanical engineering, electrical and automobile industries; processing industries; mining; food, beverages and tobacco industries.

2.2.3. Evaluation methods

The questionnaires are largely evaluated using bivariate methods. A large set of standardized tables is used to interpret the country results and to allow intercountry comparisons. For an analysis of the effect of the single market on transaction and hedging costs simple and multiple regression analysis is employed.

The answers to the individual sets of questions are grouped as follows, in terms of:

(a) eight sector groups (EU classification: basic materials; iron, steel and non-ferrous metals; mechanical engineering, electrical and automobile industry; processing industries; mining; food, beverages and tobacco; building and construction; services);
(b) the extent of foreign trade (size of import and export shares);
(c) different company sizes (measured in terms of number of employees according to EU size definitions: micro = up to 9, small = 10 to 99, medium size = 100 to 499, large = more than 500); and
(d) answers weighted by turnover from domestic production and by export shares (export shares: of responding firms as well as of the eight sectors groups according to official statistics).

3. Evolution of foreign exchange flows

In establishing the transaction costs for the exchange of EU currencies, two factors are significant: the volume of intra-EU foreign exchange flows and unit costs. To obtain the transaction costs the transaction volume is multiplied by the applicable unit cost. In order to ensure maximum accuracy in establishing the cost, the individual transactions are differentiated as far as possible in terms of the sum exchanged, the currency concerned, the market segment (spot or forward market), the market players and the type of transaction (credit transfer, cash payment or similar).

In this chapter we show in as much detail as possible the foreign exchange flows between the currencies of the EU. First we establish the total volume of foreign exchange, then this is broken down into the individual currencies. In Chapter 4, the transaction costs will be determined by multiplying the volumes of foreign exchange by the unit costs for the transactions.

No comparable study has yet been produced with the aim of determining the costs of foreign exchange transactions. The most important previous investigation can be found in the publication *One Market, One Money* issued by the European Commission in October 1990[2]. We have taken over a number of suggestions from the methodology applied in that publication. In many cases, however, a different approach turned out to be appropriate:

(a) either the subject of our investigation differed too much from the one scrutinized there (our *antimonde* is the EU without a single market, theirs was the EU without a currency union); or
(b) more up-to-date or differentiated statistical material was available.

In view of the different methodology applied and because of the more up-to-date statistical material used in the present study, the results of the Commission's study cannot easily be compared with the results of this study.

3.1. Total volume of foreign exchange and breakdown according to individual currencies and trading centres

3.1.1. Volume of foreign exchange

Table 3.1 shows the volume of foreign exchange trade at the exchanges of the EUR-12 in the years 1989, 1992 and 1995. The statistics are taken from official Bank for International Settlements (BIS) data, collected every three years in a sample month, in this case April. We used daily rates and extrapolated these figures for the year, converting the original figures given in US dollars into ECU values.

The first study enquiring into the activities of foreign exchange markets appeared in 1986; it was, however, carried out not by the BIS but by four central banks, namely the Bank of England, the Federal Reserve, the Bank of Japan and the Bank of Canada. Of the data provided by these four central banks, only the volume of foreign exchange in the UK is of interest for the present study of the level of foreign-exchange trade of the EUR-12. This had a volume of around ECU 24,000

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2 European Commission, *European Economy*, No 44: One Market, One Money, 1990.

billion in 1986, or far below the volume of foreign exchange in 1989, which attained a level of around ECU 42,500 billion.

It is, however, inadmissible to extrapolate growth rates of the UK from the year 1986 to the entire EUR-12 in view of the ratio between EU volume and that of the UK – from the year 1992 for example. This is because the foreign exchange trade in the UK during the period between 1986 and 1989 had been greatly affected by the 'big bang', the complete liberalization of the British financial market. So we can merely give an estimate of the foreign exchange trade for the EUR-12 in 1986. This estimate is based on a lower annual growth rate for the period between 1986 and 1989 for the EUR-12 than for the UK (20% for the EUR-12 as against 27% for the UK: see Table 3.2).

There are clear signs that the annual growth rate of the foreign exchange business of the EUR-12 between 1986 and 1989 should not be lower than 20%. The foreign exchange turnover of the EUR-12 is to a large part (60%) determined by the foreign exchange turnover in the UK. If we apply an annual growth rate below 20% for the EUR-12, then the growth rate of foreign exchange turnover in the rest of the EUR-12 (EUR-12 except the UK) must be clearly below 10%. On the other hand, a higher than 20% growth rate for the UK and the rest of the EUR-12 in the period between 1986 and 1989 is extremely implausible, despite the extraordinary growth in the UK due to the 'big bang'. In later time periods, the growth rates in the UK and the rest of the EUR-12 were very similar (see Table 3.2).

It should be noted that all the figures listed in Table 3.1 represent what are known as 'net/gross transactions'. They have been adjusted to account for national double counting (hence 'net'), but not for international double counting (hence 'gross'). These figures result from the statistical method used by the BIS under which each bank gives details of its trading, and, as there are two sides to every exchange deal, the volume of interbank trade is therefore recorded twice.

In any case, it is quite simple to adjust the volume of interbank foreign exchange to account for domestic double counting; this has been done for the figures in Table 3.1. But there are no figures for interbank trade adjusted for international double counting which are disaggregated by currencies and market segments. Only on the highly aggregated level – in Table 3.4 – are the above-mentioned figures adjusted to account for double counting in the international interbank trade. The non-banking business of banks is, of course, not affected by double counting.

Breakdown by currency

In Table 3.1 we can see the significance of the different currencies: the US dollar is still the most frequently traded currency in the EU. This currency was involved in a good 39% of all transactions in 1992. Among the European currencies, trade with the DM was dominant, accounting for 20% of transactions in EU trading centres. The DM is followed by the pound sterling (6%) and the French franc (approximately 4%, not shown in Table 3.1).

Table 3.1. Foreign exchange trade at EU trading centres in 1989, 1992 and 1995 (figures in billion ECU per year)

Country	Year	I = (II+III+IV +V+VI+ VII+VIII+ IX)/2 Net/gross volume of foreign exchange in all currencies	Involved on one side of the market...							
			II Local currency	III USD	IV DM	V JPY	VI UKL	VII ECU	VIII Other EU currencies[1]	IX Other currencies[1]
UK	1986	23919								
	1989	42500		38091	12344	7406	13050	705	n.d.	13579
	1992	61063	[2]	49114	25263	9300	14593	3034	9779	11039
	1995	87503		73073	31008	17396	13959	3410	12358	23830
France	1989	5909	2770	4247	2586	314	111	127	n.d.	1477
	1992	7229	3538	4472	3925	494	479	522	612	430
	1995	10926	6085	7196	5086	904	339	772	716	754
Netherlands	1989	2954	1846	2031	1163	74	93	26	n.d.	739
	1992	4091	1939	2643	1853	173	383	279	554	355
	1995	4803	1959	3334	2072	226	565	132	772	546
Denmark	1989	2954	925	2363	941	59	79	20	n.d.	1438
	1992	5613	911	3558	3028	225	504	230	1028	1740
	1995	5745	1677	4069	2110	132	94	75	1564	1771
Belgium	1989	2272	928	1855	946	---	---	57	n.d.	776
	1992	3241	822	2543	1170	221	263	569	498	1401
	1995	5293	1771	4352	1620	339	301	452	1224	527
Italy	1989	2272	1467	1219	537	21	83	206	n.d.	1012
	1992	3154	2636	1828	997	---	34	252	122	440
	1995	4370	3579	3334	1111	94	38	245	207	132
Spain	1989	1000	779	712	356	---	17	---	n.d.	136
	1992	2533	1801	1647	961	94	248	28	193	92
	1995	3447	2374	2618	1356	75	94	38	207	132
Ireland	1989	1182	129	709	667	22	215	236	n.d.	64
	1992	1230	97	635	822	50	563	124	18	149
	1995	923	207	471	527	19	339	75	75	132
Portugal	1989	204	93	149	93	---	19	---	n.d.	55
	1992	269	154	110	196	6	10	10	38	10
	1995	452	301	264	188	38	1	1	39	72
Greece	1989	91	39	65	39	---	---	---	n.d.	13
	1992	222	121	156	121	7	6	4	12	15
	1995	687	301	377	283	132	1	19	1	243
Germany	1989	n.d.		n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	1992	11495	[2]	8715	9584	819	664	n.d.	---	3207
	1995	14354		10436	10945	1111	678	264	3014	2261
Luxembourg	1989	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d..	n.d.
	1992	2709	123	2144	1442	72	224	243	312	855
	1995	3598	339	2788	2072	132	94	188	697	885
EUR-10	1986[3]	35500							n.d.	
	1989	61338	22026	51442	19672	7896	13665	1377		19290
	1992	88649	26614	66657	40280	10574	17086	5056		14677
EUR-12	1986[3]	41250								
	1989[4]	71273								
	1992	102853	36321	77516	51306	11465	17974	5299	13172	18739
	1995	142095	43497	112313	58379	20571	16504	5672	20875	31285

[1] For 1989 available data are not differentiated between 'Other EU countries' and 'Other currencies'.

[2] The sum traded with 'local currency' is included in the aggregation of the currencies (from top to bottom) both under the item 'Local currency' and in each of the respective currency columns – under DM and UKL transactions. In the aggregation of the currencies traded at the respective trading centres (from left to right), the values listed in the column 'Local currency' are naturally not added again to those listed in the currency columns (DM and UKL).

[3] Extrapolation for the EU with the aid of an estimate from the data for the UK in 1986.

[4] Extrapolation for the EUR-12 from the EUR-10 data.

Source: BIS, calculations by the IFO Institute.

Table 3.2. Growth rates in foreign exchange trading at EU trading centres (figures in percentage growth per year)

Country	Period	Growth of transactions with all currencies	Growth of transactions with individual currencies					
			Local currency	USD	DM	JPY	UKL	ECU
UK	1986–89	27.6						
	1989–92	12.8	3.8	8.8	27.0	7.9	3.8	62.6
	1992–95	12.7	-4.3	14.2	7.1	23.1	-4.3	4.0
	1989–95	12.8						
France	1989–92	7.0	8.5	1.4	15.2	16.4	63.1	60.4
	1992–95	14.8	19.8	17.6	8.8	22.3	-10.9	13.9
	1989–95	10.8						
Netherlands	1989–92	11.5	1.7	9.2	16.8	32.8	60.5	120.6
	1992–95	5.5	0.3	8.0	3.8	9.3	13.8	-22.1
	1989–95	8.4						
Denmark	1989–92	23.9	-0.5	14.6	47.6	56.3	85.7	126.3
	1992–95	0.8	22.5	4.6	-11.3	-16.3	-42.9	-31.1
	1989–95	11.7						
Belgium	1989–92	12.6	-3.9	11.0	7.4	---	---	115.8
	1992–95	17.8	29.1	19.7	11.4	15.3	4.6	-7.4
	1989–95	15.1						
Italy	1989–92	11.6	21.5	14.5	22.9	-100	-25.5	7.0
	1992–95	11.5	10.8	22.2	3.7	---	3.3	-1.1
	1989–95	11.5						
Spain	1989–92	36.3	32.2	32.2	39.3	---	143.7	---
	1992–95	10.8	9.6	16.7	12.1	-7.2	-27.6	10.3
	1989–95	22.9						
Ireland	1989–92	1.3	-8.8	-3.6	7.2	32.5	37.9	-19.3
	1992–95	-9.1	28.5	-9.5	-13.8	-28.1	-15.6	-15.3
	1989–95	-4.0						
Portugal	1989–92	9.7	18.5	-9.3	28.3	---	-17.9	---
	1992–95	18.9	24.8	33.5	-1.4	83.5	-58.3	-49.7
	1989–95	14.2						
Greece	1989–92	34.8	46.2	33.8	46.3	---	---	---
	1992–95	44.9	35.3	34.0	32.4	155.2	-46.9	61.5
	1989–95	39.8						
Germany	1992–95	7.7	14.2	6.2	14.2	10.7	0.7	---
Luxembourg	1992–95	9.9	40.2	9.1	12.8	22.3	-25.2	-8.1
EU	1986–89[1]	20.0						
(weighted)	1989–92	13.1	6.5	9.0	26.9	10.2	7.7	54.3
	1992–95	11.4	6.2	13.2	4.4	21.5	-2.8	2.3
	1989–95	12.5						
	1986–95[1]	14.8						

[1] Estimation for the EUR-12 on the basis of data for the UK in 1986.
Source: BIS, Calculations of IFO Institute.

Breakdown by trading centre

In addition to a breakdown of foreign exchange trade by currencies, Table 3.1 also shows another breakdown by transaction volumes in the respective trading centres. This table demonstrates clearly the dominance of the capital market in London in European currency trading: a good 61% of the volume of foreign exchange in 1995 was handled there, 10% of European currency trading taking place in German trading centres and 7.6% in Paris. A number of countries (Netherlands, Denmark, Belgium, Italy, Luxembourg and Spain) each accounted for about 3% of total European trade. Ireland, Portugal and Greece are smaller currency trading centres, each handling less than 1% of the EU foreign exchange volume.

The London market has such significance that much trading of foreign currencies for other European countries also takes place there. For companies and consumers in most EU Member States, the foreign currency exchange frequently takes place in London and not at the trading centre in their own country – without the prospective buyer or seller of foreign exchange being aware of this.

Table 3.2 reveals the growth in the volume of foreign exchange trading between the various survey dates.

Total EU growth

In the time periods from 1986 to 1989, from 1989 to 1992 and from 1992 to 1995, the annual rise in foreign exchange trading at EU markets was 20%, 13.1% and 11.4% respectively. Apart from the very high estimated growth between 1986 and 1989, it can still be assumed that the growth rates of the EU trading centres has declined across the board in the past decade.

However, to obtain the growth rate of the EUR-12 between the years 1986 and 1989 we did not simply take the growth rate of foreign exchange trade in the UK (+27.6%) and overwrite it in a ratio of 1:1. This is because we assumed that special factors (especially the 'big bang') had led to a higher growth in the UK compared with the rest of the EUR-12. Our estimate for the growth in the EUR-12 as a whole is around 20%.

The 13.1% growth rate for the period from 1989 to 1992 only applies to the EUR-10 without Germany and Luxembourg, because these two Member States have only supplied data on their foreign exchange trading to the BIS since 1992. The figure of 12.5% for the growth rate of EU foreign exchange trading over the whole period of six years is thus only fully applicable if figures for growth in Germany and Luxembourg in the period from 1989 to 1992 were the same as the average for the rest of the EU Member States, i.e. 13.1%. In the following we assume that this was the case.

An average annual growth of 14.8% was obtained over the total period considered here between 1986 and 1995 on the basis of the estimate of the growth rate of the EUR-12 between 1986 and 1989.

Breakdown of growth by currency

Strong growth was evident in trading which involved the ECU on one side of the market in the period from 1989 to 1992 (+54.3%). Because uncertainty over the future value of the ECU has increased considerably since 1992 – the ECU was devalued several times against a range of

'hard currencies' – acceptance of the ECU has lessened in the 1992–95 period and trading growth has declined (+2.3%). However, the same growth profile is true for DM trading (+26.9% and +4.4% in both time periods respectively). Trade with the pound sterling decreased modestly over the whole time period (+7.7% and -2.8 %). Growth in trade with the US dollar and the Japanese yen was below average between 1989 and 1992 (+9.0% and +10.2% respectively) and gained momentum in the second period (+13.2% and +21.5%). Extraordinarily high growth figures were attained in the post-1992 period for EU currencies other than the DM and the pound sterling.

Breakdown of growth by trading centre

Growth in the individual Member States, however, was quite variable in the two periods; figures fluctuated between +1.3% and +36.3% in the period between 1989 and 1992, and between -9.1% and +44.9% between 1992 and 1995. Growth was particularly weak in both these time periods in Ireland, and particularly strong in Greece and Spain.

3.1.2. Filtering out the intra-EU transactions

The total volume of foreign exchange trading between EU currencies can be inferred from the figures for trading volumes at the individual European trading centres. Such a calculation has already been performed by the European Commission (1990). Using an algorithm which has not been made public, it was calculated that between 34% and 43% of the volume of foreign exchange trading on EU foreign exchange markets took place between EU currencies.

In extracting the figures for those transactions that take place between EU currencies – whatever the method used, the one presented here or any other 'filter mechanism' – consideration must certainly be given to currency trading between the respective domestic currency and any other EU currency; also to be included is trading between two 'external' EU currencies (EU currencies that are not domestic currencies); and finally what is known as 'triangular trading' is also to be included.

The latter involves exchanging from the local currency, or any other EU currency, into, say, US dollars and then immediately exchanging from the vehicle currency into the 'target' currency. In the following, these types of deals are also termed 'indirect foreign exchange trading' between EU currencies. Triangular trading takes place because it is generally cheaper to 'go via a vehicle currency' than to exchange directly into the other currency, especially in the case of the currencies of smaller countries. This can be seen in the fee scales for foreign exchange transactions (bid-ask spreads) in Tables 4.1 and 4.7.

The figure of 34% to 43% mentioned above for intra-EU foreign exchange trading as a share of the total volume of foreign exchange trading at EU trading centres was based on very limited statistical data from the BIS for the year 1989. Therefore, using detailed information from the BIS for the years 1992 and 1995, we calculated the volume of (direct and indirect) intra-EU foreign currency trading. The share we worked out for 1992 and 1995 cannot be compared to the share calculated by the EU for the year 1990 for reasons of differing methodology and data.

Our calculations show that two EU currencies are involved in 51% and 53% (in 1992 and 1995 respectively) of the total foreign exchange transactions at EU trading centres. In

extrapolating this trend we estimate that for the years 1989 and 1986 intra-EU trade accounts for 52.0% and 51.0% of total foreign exchange trade.

These shares refer to the average, weighted according to volume, of all EU trading centres. Empirically, it is evident that very different levels of trading in EU currencies take place at the various trading centres (Table 3.3). The share fluctuates from 42% in the case of Denmark in 1995 to 86% in the case of Portugal in 1992.

Table 3.3. Volume of trading in EU currencies at EU trading centre (figures in billion ECU per year)

Trading centre	Year	Total volume of foreign exchange transactions	Exchange volume between EU currencies	Share: volume of trade between EU currencies as a share of the total volume
UK	1992	122126	54751	0.45
	1995	174731	89514	0.51
Germany	1992	22991	14409	0.63
	1995	28723	16000	0.56
France	1992	14459	10035	0.69
	1995	21870	13985	0.64
Denmark	1992	11227	5025	0.45
	1995	11507	4807	0.42
Netherlands	1992	8182	5408	0.66
	1995	9611	5725	0.60
Belgium	1992	6483	3493	0.54
	1995	10590	5811	0.55
Italy	1992	6309	3143	0.50
	1995	8759	3653	0.42
Luxembourg	1992	5418	2684	0.50
	1995	7181	4428	0.62
Spain	1992	5067	2716	0.54
	1995	6880	4064	0.59
Ireland	1992	2460	1537	0.62
	1995	1837	1256	0.68
Portugal	1992	538	464	0.86
	1995	897	580	0.65
Greece	1992	445	323	0.73
	1995	1240	770	0.62
EUR-12	1992	205708	103988	0.51
	1995	283825	150592	0.53 (weighted acc. to proportion of trading volume)

As already mentioned, the calculations upon which Table 3.3 is based come from very detailed figures from the BIS's reports for 1992 and 1995. In Excursus 1 in Appendix B it is explained – for the example of the UK – how to calculate the shares given in Table 3.3. In Excursus 2 we checked our calculations of Table 3.3 with statistical data for Germany and France 'from the bottom up'. We found that they are sufficiently well-founded.

3.2. Volume of foreign exchange and breakdown according to market players

Transaction costs apply whenever currencies are exchanged between a bank and a non-bank (company, private household or public institution), and also between two banks. As transaction costs in exchanging currencies between two banks are much lower than when a non-bank is involved, we must separate the transactions of these two groups.

3.2.1. No general exclusion of interbank transactions

At this point, the present study departs from the one produced by the EC in 1990. The latter only included foreign exchange transactions of non-banks for calculating intra-EU transaction costs for foreign exchange. In that study the *antimonde* was a world with a currency union in the EU. It was calculated which costs would be eliminated by switching from the actual world to the *antimonde*.

It was argued that interbank trading costs should not be included as foreign exchange transaction costs because, on the one hand, the end user of the foreign exchange had to pay for them in bank fees. Otherwise, so the argument went, the same costs would be counted twice, once on the side of the banks and then again on that of the end user.

On the other hand, in the case of European currency union, arbitrage and speculation transactions would shift to other, extra-EU currency markets. In this way the economic costs of arbitrage and speculation transactions would continue also in the scenario of a European currency union.

In the *antimonde* of the 1990 EC study – in the currency union – costs for interbank transactions would therefore continue. There would be no decrease in the costs for interbank transactions in the *antimonde*.

In the present study, however, it is important to list all economic costs that arise from the juxtaposition of several currencies, not only those which arise from the switching from the actual world to the *antimonde*[3]. This includes those costs borne by the end user of the foreign exchange and in many cases also the costs for interbank trade. These two costs may not always be set off against one another, just as little as the costs of a regulation, for example, are not only to be measured at the level of the final consumer, but must generally also be registered in the upstream stages of production.

Also the second argument against taking interbank trading into account cannot be used in our study: in our *antimonde*, the situation without the single market, the speculation and arbitrage transactions between EU currencies would be just as applicable as they are today in the world of the single market. To measure total foreign exchange management costs we have to calculate the relevant interbank transaction costs that accrue in both scenarios.

There are different kinds of interbank transactions. They can be transactions which are necessary to conduct non-bank foreign exchange deals. They can also be 'autonomous' interbank transactions in which banks follow their 'own business', such as arbitrage and speculation transactions. The first kind of interbank transactions is not to be included in the calculation of intra-EU foreign exchange management costs; otherwise there would be double counting on the side of customers and on the side of the banks.

For us, the second type of transactions is relevant. These are the 'autonomous' interbank transactions. In Section 4.1.2 we will filter out these 'autonomous' transactions from the total interbank transactions. We will also weight them with unit costs to come to the total costs of

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[3] The *antimonde* in the present study is the situation without the single market. The basic scenario here is the actual world without the EU single market.

interbank transactions. These costs are to be added to the total costs of foreign exchange management accruing at non-banks (Section 4.3).

3.2.2. A breakdown in interbank and customer business

In Table 3.4 the transactions of both groups for the EU as a whole are presented.

Table 3.4. Breakdown of total foreign exchange trade of the EU in gross and net transactions and interbank and customer business (figures in billion ECU per year or in percentage of annual growth – differences in totals result from rounding)

	Year or time period	I	of which:	III= I-0.5(II)= V*+V+VI +VII	of which:			
		Gross volume of foreign exchange	II Domestic interbank trade and options with traders	Net/gross volume of foreign exchange	IV Cross-border interbank trade	V Customer business	VI Domestic interbank trade, net	VII Business with futures and options
EUR-10	1986(e)			35500				
	1989	77317	31138	61340	37181	8515	15734	
	1992	106338	35497	88649	60060	8497	16874	3218
	1995			124000	98250	8618	17132	
EUR-12	1986(e)			41250	27000	5000	9250	
	1989(ep)			71273	43692	9771	17415	396
	1992	122096	38509	102854	70577	9750	18677	3850
	1995	196177	27041	142095	104396	10479	27220	
	1986–89			20%	17%	25%	23%	
	1989–92			13%	17%	0%	2%	
	1992–95			11%	14%	2%	13%	
	1986-1995			15%	16%	9%	13%	
				III*= IV*+V+ VI+VII	of which:			
				Net/net foreign exchange volume	IV* = (0.526)IV Cross-border interbank trade, net	V Customer business	VI Domestic interbank trade, net	VII Business with futures and options
EUR-12								
1986(e)				28452	14202	5000	9250	
	1989			50536	22982	9770	17415	369
	1992			69400	37123	9750	18677	3850
	1995			92611	54912	10479	27220	

(e) = Estimation for 1986 for the EUR-12 on the basis of data for the UK.
(ep) = Extrapolation from EUR-10 to EUR-12 and backwards with the volume relation of 1992.

Table 3.4 shows the following: starting with the gross trading volume in the EUR-12 – for example, in 1992, ECU 122,096 billion – we obtain the net/gross volume of foreign exchange

trade by subtracting half of the domestic interbank trade from the former[4]. This operation is necessary because the interbank trade in a country would otherwise be counted twice, once on each side of the market. The resultant net/gross foreign exchange volume of the EUR-12 for 1992 is thus ECU 102,854 billion. This figure also appears in Table 3.1 under the section on 'Net/gross foreign exchange volume'.

The net/gross trading volume can be further subdivided into cross-border interbank trade (not adjusted for double counting), the domestic interbank trade (counted only once, not twice) and customer business. In 1992 'derivative' currency trading was also included in this statistic; in 1995 figures for 'derivative' currency trading were given separately.

To establish the net/net foreign exchange volume, double counting must be extracted from the calculation for international interbank trading as well. The BIS has calculated here that 52.6% of cross-border interbank trade can be counted towards the net foreign exchange volume. Thus, for example, for 1989 the net foreign exchange volume of the EUR-12 is 50,536 [=71,273-0.474x(43,692); differences due to rounding]; extrapolating the trend for the net/net turnover for 1986, this gives a volume of ECU 28,452 billion.

3.2.3. Significance of different market players

The banks are dominant among the market players involved in foreign exchange trading. In 1995, net transactions of nearly ECU 55 trillion took place between domestic and foreign banks (Table 3.4); that is nearly 60% of all net/net transactions. In the same period, the volume of foreign exchange trading between two domestic banks was about ECU 27 trillion or 29% of net/net transactions. Trading between a bank on one side of the market and a non-bank on the other accounted for only about ECU 10 trillion in 1992 (11% of net/net transactions).

Insofar as data for several years were available, the annual rate of growth was also calculated for the period between these years and given in Table 3.4. A strong rise of around 13% and 11% per annum, respectively, can be seen of the net/gross foreign exchange volume of the EUR-12 in the 1989–92 and 1992–95 time periods. However, this rise is borne mainly by the expansion of the interbank trade. The cross-border interbank trade grew by 17% and 14% annually; the domestic interbank trade by 2% and 13% p.a. Customer business in foreign exchange stagnated in the 1989–92 time interval and expanded moderately between 1992 and 1995 (2% p.a.).

If we additionally call upon the somewhat uncertain data from the year 1986 – here we have the UK data, that we used to make an estimate for the EUR-12 – then we see an annual rise of 15% of the total gross/net foreign exchange volume from 1986 to 1995. In this calculation, too, the growth is borne mainly by the interbank trade: the annual increase in cross-border interbank trade over this entire time period amounted to 16%, that of the domestic interbank trade to 13%. Taking the year 1986 as the basis for this calculation, we also see a significant increase (9% annually between 1986 and 1995) in the non-bank business with foreign exchange.

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[4] The remainder from this arithmetical operation is due to national option transactions. Because these are estimated to a considerable extent, and as they have a very low volume and play no role in the preceding analysis, we assign no importance to this difference in the following treatment.

3.3. Volume of foreign exchange and breakdown according to market segments

Foreign exchange transactions can take place either immediately – when they occur on the spot market – or in the future – in the forward market. The latter market comprises two distinct segments, the outright forward market and the swap market. Similar to spot transactions, settlement of outright forward deals is within one or two days. Swap deals, on the other hand, have two separate legs. The two counterparts agree to exchange two currencies at a particular rate at one date and to reverse the transaction at some future date.

Besides outright and swap deals, the forward market also allows future incoming or outgoing payments to be hedged with futures or options. Table 3.5 shows the aggregated trade of the EUR-12 in 1992 and 1995 respectively on the various market segments; for 1989 only figures for the EUR-10 are available.

Table 3.5. Breakdown of foreign exchange trade of the EU in various market segments (figures in billion ECU per year – differences in total result from rounding)

Year and region	Market segment	I =II+III+IV +V	of which:				
		Net/gross foreign exchange volume	II Cross-border interbank trade	III Customer business	IV Domestic interbank trade, net	V Business with futures and options	
1989 EUR-10	all market segments	72000					A=B+C+D +E
	spot market	45000[1]					B
	outright forward	2000[1]					C
	swap	25000[1]					D
	futures and options						E
1992 EUR-12	all market segments	102917	70613	9750	18704	3850	A=B+C+D +E
	spot market	50947	35997	4415	10535		B
	outright forward	6306	3432	2115	759		C
	swap	41826	31180	3237	7409		D
	futures and options	3850				3850	E
1995 EUR-12	all market segments	141912	104393	10478	27041	n.d.	A=B+C+D +E
	spot market	57789	41815	4123	11851		B
	outright forward	9375	6015	1947	1413		C
	swap	74746	56563	4407	13776		D
	futures and options					n.d.	E

[1] Partly estimates.
Note: Small deviations from data in Tables 3.1 and 3.4 are due to gaps in data and rounding.
Source: BIS, IFO calculations and estimations.

Table 3.5 shows that the share of foreign exchange trade of the reporting EU Member States on the spot market dropped from 62.5% in 1989 to 50% in 1992 and to only 40% in 1995. The complement to the spot business, the forward trade, has gained corresponding market shares. Particularly high growth was recorded in the entire period by the swap transactions. The latter

still made up around 30% of total trade in 1989 and grew strongly, so that their share amounted to over 40% in 1992 and 53% in 1995.

A further breakdown of the market segments according to active market players is available only for the years 1992 and 1995. Here it becomes particularly clear that the banks tend to prefer swap transactions in the forward market, whereas the bank customers tend strongly to conclude outright transactions. This piece of information accords with the empirical fact that non-banks perform real transactions more readily than banks. For when real transactions are hedged, then this is done almost entirely through outright transactions. In contrast, financial transactions are hedged via the swap market, and as the banks are more strongly involved in financial transactions than non-banks, the share of swap transactions made by banks is comparatively high.

It is especially important for us to know what percentage of the non-bank business is hedged. This is because we will calculate somewhat higher unit costs later for the hedged non-bank transactions than for the non-hedged business. We assume that no additional costs arise for the banks in hedging a foreign exchange transaction. It can be seen from Table 3.5 that 45% and 39%, respectively, of the non-bank transactions take place on the spot market in 1992 and 1995; these transactions fall into the category of non-hedged transactions as will be explained in more detail later. Of the foreign exchange transactions carried out by non-banks, 21% and 19% are hedged by outright futures business in 1992 and 1995 respectively and 34% and 42% by swap transactions.

3.4. Volume of foreign exchange between non-banks and breakdown according to transaction size and type

3.4.1. Transaction size categories in non-bank trading

For the non-banks, the costs of the foreign exchange transactions vary depending on the size of the sum exchanged. So we need statistics which provide information about transaction size categories in foreign exchange trading by non-banks.

For the breakdown of intra-EU foreign exchange transactions we make use of a survey published by the European Commission in 1990. This survey divided the trade balance transactions (see Table 3.5). (In the following we assume that there is no difference between the division of size categories in trade balance and current account transactions.)

In addition to the average size categories for trade balance transactions (the other current account transactions are classified in exactly the same way), the EU study from the year 1990 also provides us with data about the classification of the size categories of capital balance transactions. The survey of capital transactions in Belgium is of particularly great value. This listing of gross capital transfer flows was possible only because Belgium had a 'split exchange rate' at that time, i.e. different exchange rates for current account transactions and capital transactions. Only because of this regulation was it possible to list capital flows separately.

Table 3.6. Trade balance transactions according to size categories

Transactions (ECU)	Belgium/ Luxembourg	Germany	Italy	Weighted average of Belgium/ Luxembourg, Germany and Italy	For information: size categories of capital account transactions in Belgium/ Luxembourg	Estimation for categories of capital account transactions for the EUR-12
1 – 1,000	1.0	1.0	0.3	0.8	0.1	0.1
1,000 – 5,000	4.4	4.4	1.0	3.2	0.9	4.0
5,000 – 1,0000	4.2	4.3	3.1	3.9	0.5	4.0
10,000 – 50,000	16.5	22.7	39.3	26.1	0.9	4.0
50,000 – 100,000	8.6	6.5	14.7	10.0	0.8	4.0
100,000 – 500,000	19.9	61.2	18.8		4.0	8.0
500,000 – 1 million	7.3		5.9	53.9	3.8	8.0
1 – 5 million	17.6		11.0		26.0	20.0
5 million and more	14.7		6.4		63.0	47.9

Source: European Commission (1996) and IFO estimations.
Note: Differences in totals result from rounding of figures.

Today, however, no such split rate exists, either in Belgium or in other EU Member States, so there is no requirement to list capital transactions separately. This means that it is also no longer possible to obtain such details of the size categories of capital transactions. So we took the 1989 figures for Belgium as a starting point for estimating the figures for the whole of the EUR-12.

However, we still need to adjust the size category classification for Belgium/Luxembourg as the capital movements of the BLMU will be likely to be particularly affected by tax evasion transactions, and this kind of transaction has a clear bias towards high transaction volumes. In our estimate for the EUR-12 for the year 1989 – the same estimate also holds for 1995 – a higher transaction volume is therefore found in lower transaction size categories.

3.4.2. Transaction types in non-bank trading

It is also necessary to differentiate between different types of transaction in order to obtain maximum accuracy in establishing the costs for intra-EU foreign exchange transactions. The payments in different transaction methods are cheaper or more expensive depending on the administrative effort involved for the banks. Table 3.7 shows payments in the EUR-12 using various transaction media; they were determined from the data on the payment habits in the individual EU countries. The national data were then also weighted with the share of the relevant EU Member State in the total intra-EU trade.

The payment habits shown in Table 3.7 were arranged so that the transaction unit costs increase from left to right: transfers and cheque payments – where these do not include the Eurocheques and travellers' cheques for higher amounts – are probably the least expensive way of making transfers of payments from one EU Member State to another. In the case of payments with credit cards, Eurocheques and other travellers' cheques – and especially in the case of cash trading – the costs incurred are higher than the commission rates for transfer payments.

Table 3.7. Significance of different payment methods in the EUR-12

	Automatic transfer	Specific transfer	Cheque	Credit card	Cash	Others
1986(e)	35.0	45.0	16.0	0.1	3.0	0.9
1989	35.9	44.3	14.5	0.2	3.5	1.1
1990	44.7	38.0	11.8	0.3	3.8	1.4
1995(e)	48.5	35.0	10.0	1.0	3.5	2.0

Note: All figures in % of total payment. Differences in totals result from rounding of figures.
(e) = estimation for the years 1986 and 1995.
Source: Committee of Governors of the Central Banks of the Member States of the European Economic Community, Payment Systems in EC Member States, 'Blue Book', September 1992; see also: European Monetary Institute, 'Blue Book Addendum', May 1994; Calculations of IFO Institute.

The data in Table 3.7 are based on surveys about the payment habits in all EUR-12 countries for both national and international payments. However, as most payments take place within the individual EU Member States, these figures reflect the payment habits within a country rather than the habits in cross-border payments. But cross-border payments traffic probably differs only little from the mode of payment used for national transfers. Moreover, we assume that there are hardly any differences in the payment habits between national and cross-border payment traffic.

According to the data in Table 3.7, transfers have an exceptional importance among the modes of payment in the EU. Their share in the entire payments volume has even probably increased slightly in the course of the period of time analysed here, from 80% to somewhat above this figure. As against this, cheque payments in particular have lost in importance: their share dropped from a good 15% to about 10%. Payments using credit cards have certainly shown the greatest growth as a proportion of all payments; nevertheless, the level of payments using this means is comparatively insignificant. Cash payments have a constant share of around 3.5% of all payments in the EUR-12 Member States.

As exchange costs with coins and banknotes are particularly high in cross-border payment traffic – and errors therefore have a strong effect – we recalculated this item from the bottom up. Therefore we surveyed central banks and corresponding institutions in four EU Member States. The results are given in Appendix B, Excursus 3: 'bottom-up' calculations for trade in coins and notes coincide with the share of 3.5% of total intra-EU payments.

3.5. Total foreign exchange volume of non-banks, current account and capital account transactions

As reference will later be frequently made to the transactions underlying the foreign exchange business of non-banks, the foreign exchange trade will be contrasted here to the trade in current and capital accounts. Table 3.8 lists the development of the transactions of the non-banks in current account and capital account trade and in total foreign exchange trade.

Table 3.8. Volume of intra-EUR-12 current account and capital transactions (in billion ECU)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Intra-EU current account transactions[1]	1382	1408	1577	1828	1935	2117	2282	2291	2300	2300
Memo: of which intra-EU trade transactions	860	915	1018	1168	1240	1296	1312	1240	1300	1300
Intra-EU capital-account transactions[2]	1118	1592	1923	2172	2565	2633	2718	2809	3000	3000
Total intra-EU foreign-exchange transactions – non-cash[3]	2500	3000[4]	3500[4]	4000[4]	4500[4]	4750[4]	5000	5100	5300	5400
Memo: total foreign exchange transactions of non-banks at EU trading centres	5000			9770			9750			10479
Memo: share of intra-EU transactions out of total transactions in %	51			52			52.6			53

[1] Taken from Eurostat: Geographical breakdown of current accounts EUR12 1984 to 1993; estimates for the years 1994 and 1995.
[2] Residual sum determined from the difference between the total foreign-exchange and current account transactions.
[3] Taken from BIS, *Survey of Foreign Exchange Market Activity*. For example for 1995, customer business amounts to around ECU 10,500 billion; this is multiplied with the share of intra-EU transactions out of total transactions (53%). The result from this calculation is ECU 5,565 billion. Of this sum, 3% was subtracted to exclude the cash trade in the calculation, whose costs were calculated separately. The resulting figure for 1995 (rounded) is ECU 5,400 billion.
[4] Between 1986 and 1992 we have inserted a more smoothed evolution (permanent moderate increase) instead of the step-wise evolution (strong increase between 1986 and 1989, no growth between 1989 and 1992).

It can be seen that the current account and trade balance transactions between the EU Member States have risen continually over this entire period of time. On average, the current account transactions between 1986 and 1995 increased at an annual rate of 5.8%, the trade balance transactions at a rate of 4.6%.

That part of the foreign exchange transactions that is not used for current account transactions is used for gross capital transactions. It cannot be ignored that the development of movements in capital volume shown in Table 3.8 does not quite correspond to the real capital movement. This is due to the insufficient data available and the resulting great importance of the estimated component for the gross capital transactions: the volumes of capital movements shown in Table

3.8 were calculated as the remainder between the good data on current account transactions and the rather imprecise data on the total foreign exchange transactions.

However, there is scarcely any way of obtaining a better estimate of gross capital transactions. If use is made of statistics giving records of capital transactions, then it should be noted that these, in the main, merely contain data about long-term capital movements – and not all transactions are even recorded for these. In the case of short-term capital movements, it is often quite impossible to record every transaction purely in a technical sense. Very short-term transactions, such as a speculative purchase of US dollars by a private individual that is cancelled again about an hour later, can hardly be recorded by the statistics. Often the rule of banking secrecy also prevents non-bank transactions from being recorded. In most cases, only net values can be derived from the statistics on capital movements of the non-banks, and these make up only a fraction of the gross transactions.

In addition, such statistics often make no distinction between banks and non-banks. Finally, these statistics have considerable gaps; for example, because they do not include non-bank transactions that are cleared not by banks but by near-banks (such as brokers and funds).

We, therefore, believe that we have had considerably better success with our method of calculating the capital transactions, namely by determining these as the difference between the total transactions and the current account transactions, than if we had simply summed the capital transactions from the data provided by the statistics. This remains true despite the problems that we encountered in having only rather rough data about the total volume of foreign exchange transactions of the non-banks.

In general, the results of our calculations seem to be quite plausible: between 1986 and 1989, there should be a strong increase in capital account transactions, mainly induced by the liberalization of capital movements in many EU Member States (France in 1990–91, Italy in 1990, Spain in 1991–92, Belgium in 1987–90, Luxembourg in 1987, Netherlands in 1986; see also Section 5.2). After this boom, the cross-border capital transactions should have increased only moderately.

4. Costs of foreign exchange transactions

The unit costs of the various transactions are now set against the volume of transactions of individual market players. The total transaction costs are worked out by multiplying these together.

4.1. Interbank trading

4.1.1. Exchange unit costs in interbank trading

The spreads between the buy and sell rates in the interbank market for exchanging all EU currencies into important currencies are given in Table 4.1.

Table 4.1 gives the absolute level of the bid-ask spreads for intra-EU currencies and important third-party currencies. In 1995, for example, this spread for exchanging DM into all other EU currencies for which we have a listing for 1989 as well, is 0.02%. The costs for the transactions between the DM and all other EU currencies were somewhat higher, at 0.04%, above all because the transactions with the currencies of the 'smaller' EU countries – for which we have no listing for 1989 – are in general somewhat more expensive. The spread is below that for transactions between the dollar and the EU currencies at a level of 0.05%.

It is clear from the low unit costs for DM transactions – as compared to unit costs for US dollar transactions – that the DM is today regarded as a good substitute for the US dollar for triangular transactions between EU currencies.

In exchanges between European currencies in which the DM is not involved on one side of the market, very high spreads are still observed. However, this will hardly affect the actual transaction costs for the intra-EU commodity and capital movements, as the exchange between EU currencies is overwhelmingly carried out, as just said, by means of triangular transactions with the DM.

Table 4.2 shows the change in the bid-ask spreads: in the interbank trade involving exchange of an EU currency into all important 'vehicle' currencies, these have moved downwards for almost every currency pair.

This development appears to have occurred around the world. Thus, the spreads for exchanging the yen into another vehicle currency have also decreased. For two of the five vehicle currencies, this occurred even more strongly than in exchanging from an EU currency into the vehicle currency. In addition, transactions using the US dollar as a vehicle currency have become cheaper, if not to the same degree as when using one of the three most important EU currencies (DM, UKL, FF) as the vehicle currency.

Table 4.1. Bid-ask spreads (%) in interbank trade

Currency	Year	Spreads					
		USD	UKL	DM	ECU	FF	NLG
USD		X					
UKL	1989	0.06	X				
	1995	0.03					
DM	1989	0.04	0.11	X			
	1995	0.04	0.05				
ECU	1989	0.04	0.11	0.08	X		
	1995	0.08	0.13	0.03			
FF	1989	0.08	0.15	0.12	0.13	X	
	1995	0.02	0.06	0.03	0.17		
NLG	1989	0.05	0.10	0.09	0.10	0.13	X
	1995	0.06	0.10	0.001	0.10	0.16	
BEF	1989	0.10	0.18	0.16	0.14	0.33	0.16
	1995	0.07	0.17	0.01	0.13	0.12	0.05
LIT	1989	0.07	0.13	0.12	0.13	0.20	0.20
	1995	0.03	0.12	0.04	0.09	0.06	0.31
DKK	1989	0.10	0.17	0.14	0.13	---	---
	1995	0.04	0.09	0.03	0.08	0.14	0.17
GRD	1989	0.18	0.25	---	---	---	---
	1995	0.04	0.11	0.03	0.07	0.15	0.14
PTA	1989	0.09	0.16	---	---	---	---
	1995	0.08	0.10	0.06	0.13	0.20	0.08
IEP	1989	0.10	0.19	---	---	---	---
	1995	0.06	0.20	0.09	0.19	0.13	0.10
PTE	1989	0.13	0.20	---	---	---	---
	1995	0.07	0.04	0.05	0.13	0.17	0.14
Average spread	1986(e)	0.12	0.17	0.17	0.17	0.25	0.25
	1989	0.09	0.16	0.12	0.13	0.22	0.18
	1995[1]	0.05	0.10	0.02	0.11	0.11	0.18
	1995[2]			0.04	0.12	0.14	0.14
For information: JPY	1989	0.06	0.14	0.13	---	0.20	0.13
	1995	0.05	0.08	0.06	0.08	0.16	0.07

'---' means that no quotation is available.
(e) = Estimation for 1986 using the growth rate between 1989 and 1995 and considering some factors which seemed important to us, i.e. the degree of using the currency as a vehicle currency, as an internationally accepted payment medium or a reserve currency.
[1] For currency pairs in which a spread is available for 1989.
[2] For all currency pairs.
Source: For 1989: *European Economy* (1990), source quoted there: Telerate; for 1995: Datastream.

Table 4.2. Changes in the bid-ask spreads in interbank foreign exchange trade between 1989 and 1995 in %

Currency	USD	UKL	DM	ECU	FF	NLG
USD	X					
UKL	-50	X				
DM	0	-55	X			
ECU	100	18	-62	X		
FF	-75	-60	-75	31	X	
NLG	20	0	-99	0	23	X
BEF	-30	-6	-94	-7	-64	-69
LIT	-57	-8	-67	-31	-70	55
DKK	-60	-47	-79	-38		
GRD	-78	-56				
PTA	-11	-38				
IEP	-40	5				
PTE	-46	-80				
Average rate of change	-27	-29	-79	-9	-36	-6
For information: JPY	-17	-43	-54		-20	-46

Source: For 1989: *European Economy* (1990), source quoted there: Telerate; for 1995: Datastream.

A markedly strong reduction – by almost 80% – in the spreads is seen for transactions between an EU currency and the DM. From this, the total volume of intra-EU foreign exchange should profit, as the DM is the most important vehicle currency for transactions in the single market. A strong narrowing of spreads – amounting to 36% – is also seen in transactions involving the French franc.

4.1.2. Level of transaction costs of interbank business

If the net local as well as cross-border interbank trade in foreign exchange of the EUR-12, amounting to ECU 82.1 trillion n 1995 (Table 3.4), is now taken, and this sum is multiplied by the share of 53% – as only this percentage is exchanged between two EU currencies in 1995 – the result is a volume of ECU 43.5 trillion.

Filtering out 'autonomous' interbank transactions

From this amount of interbank transactions, a certain part is done to conduct customer business. These 'customer induced' interbank transactions may not be considered in the volume of transactions with which we calculate the total foreign exchange management costs, because these transactions are paid by customers; they are added on the customer side to the total foreign exchange management costs. We have to find out the volume of customer induced business and deduct it from the total interbank foreign exchange transactions mentioned above (ECU 43.5 trillion).

Customer induced transactions are not only those with one customer on one side of the market because they often need more than one interbank deal:

(a) From the total volume of ECU 10.5 trillion for customer business in the year 1995 (Table 3.4), ECU 5.3 trillion is intra-EU business. Of this, about 60% are triangle deals, which make an additional transaction necessary (one transaction into the vehicle currency and one into the target currency). Customer induced triangle deals therefore amount to ECU 6.7 trillion; the rest of the customer induced business – the direct transactions from one EU currency into another – is 2.2 trillion ECU. Adding up, we have a volume of 'customer induced' interbank transactions of ECU 8.9 trillion.

(b) According to Table 3.5 only 39% of the customer transactions are spot transactions in 1995; this gives transactions amounting to ECU 3.5 trillion (39% of ECU 8.9 trillion). The rest, ECU 5.4 trillion (61% of ECU 8.9 trillion), are forward transactions, for which an additional transaction is necessary, too.

(c) In total, we have customer induced interbank transactions in 1995 of ECU 3.5 trillion for spot transactions and of ECU 10.8 trillion (two times ECU 5.4 trillion) for forward transactions; together this amounts to nearly ECU 14.3 trillion.

The difference between the customer induced intra-EU interbank transactions (ECU 14.3 trillion) and the total intra-EU interbank transactions (ECU 43.5 trillion) are the autonomous transactions (amounting to ECU 29.2 trillion). Therefore, autonomous transactions account to 67% of total intra-EU interbank transactions in 1995. Only those interbank transactions are causing foreign exchange management costs which are not counted again on the side of the customers. These autonomous interbank transactions are now taken to calculate costs for interbank foreign exchange business.

Applying unit costs on autonomous interbank transactions

The average unit cost for interbank transactions must now be applied to this volume. The average bid-ask spread weighted according to the importance of the various currencies – as shown in Table 3.1 – was somewhat less than 0.1% in 1995 (Table 4.1). Of this, only one half can be used in calculating the transaction costs for each exchange process. This calculation yields interbank transaction costs to the amount of ECU 13.1 billion in 1995.

The transaction costs in interbank trade in 1989 differ from those in 1995 by the fact that the foreign exchange flows in the interbank trade were lower but the unit costs were higher. The sum of net local and cross-border interbank trade was ECU 40.5 trillion in 1989 in the EUR-12. If we make exclusive use of intra-EU transactions (52.0% of total transactions in 1989), then we obtain a volume of ECU 21.3 trillion. Subtracting customer induced operations of banks – in 1989, they amount to 47% of all interbank transactions – this amount comes down to ECU 9.0 trillion.

The weighted average bid-ask spread was somewhat higher in 1989 than in 1995, namely 0.16% of the total volume of exchanges. If half this rate is applied to the volume of transactions in 1989, then we obtain transaction costs of ECU 11.6 billion.

In 1986 finally, the net domestic and the net cross-border trade between banks in the EUR-12 was only ECU 24.2 trillion. Filtering out the extra-EU transactions as well as customer induced operations, interbank transactions are amounting to ECU 5.5 trillion. Weighted with half the mean spread between the buy and sell rates of 0.2% (significantly higher compared to 1992), the resulting transaction costs were just ECU 5.5 billion.

4.2. Foreign exchange trade of non-banks

4.2.1. Non-bank transactions – except for cash trade

Exchange unit costs for non-bank transactions

In order to calculate the total transaction costs as exactly as possible, a distinction must be made not only between the participants in the foreign exchange business, the banks and non-banks, but also between the transaction volumes. We need not distinguish between the transaction volumes in interbank trade because the category size is very high for almost all types of transaction and also because the costs are in principle very low – there are no additional costs apart from the bid-ask spread and these depend hardly at all on the size category.

However, in the transactions between banks and non-banks we must still make a distinction based on the size categories of these transactions. It then naturally applies that the higher the transaction volume, the lower the exchange unit costs. Table 4.3 gives estimates and surveys for the unit costs for different size categories of transactions.

Table 4.3. Establishing foreign exchange unit costs for non-bank transactions in relation to transaction volume (all figures in percentage of transaction volume)

	Estimate for present study for 1986	European Commission[1]	BDO Stoy Hayward Consulting[2]	EU Commission DG XV[3]	EU Commission DG XV[4]	IFO[5]	Estimate for the present study for 1995
		1989	1994	1993	1994	1995	
Large sums							
ECU 100,000	0.4	0.3			}	0.3 – 0.4	0.2
ECU 10,000	0.5	0.5			}		0.4
ECU 5,000	0.6		0.45				0.5
ECU 2,500	0.9				ca. 0.8		0.8
Small sums							
ECU 100	12.5	12.5		20.3	25.4		20.0

[1] In: European Commission (1990).
[2] In: Economic papers of the European Commission, No. 113, July 1995. The figure quoted is the average, unweighted unit cost for payments from all EU Member States into another EU Member State, including exchange fee.
[3] In: 'Remote cross-border payment services: transparency in conditions offered and performance of transfers executed', Report for the European Commission drawn up by Retail Banking Research Ltd, London, 1993.
[4] In: 'Study in the area of payment systems into the transparency of conditions for remote cross-border payment services and the performance of cross-border transfers', Report for the European Commission (DG XV), drawn up by Retail Banking Research Ltd, London, 1994.
[5] Figures from the postal survey and the interviews in the present study. The rate applies to companies, not private persons, and in this case only to those companies classed as 'large customers'. It became evident, however, that very many companies, including smaller ones, have this status.

In interpreting Table 4.3, it is important to know that exchange costs are by no means incurred only for the currency exchanges themselves. The high unit costs for exchanging small sums in particular tend to be due to the administration fees and handling charges of the banks. Thus, the costs for the currency conversion itself, even in the fourth study mentioned above (European Commission, 1994), for example, constituted only 0.42% of the sum of ECU 100 exchanged. Bank charges were responsible for the remaining costs amounting to almost 25% of the sums exchanged!

The results of the surveys made at different times are of limited use for an inter-temporal comparison of the unit costs for exchange transactions. This is, first, because they originate from very diverse types of survey. The IFO estimate applies more or less only to companies, but not to private individuals. Second, the sample is simply too small (only five surveys) for an exact statement about the development of the transaction unit costs to be derived with any reliability.

However, one thing does seem very probable: the unit costs for exchanging large sums have certainly tended to go down between 1989 and 1995. In contrast, the costs for small sums should have risen. This phenomenon is also supported by the little exact data (we possess precise data on exchange unit costs only for interbank and cash trade) that are available on the development of exchange unit costs. In interbank trade – where the transaction size categories are certainly exceptionally large – exchange costs have dropped, whereas in the cash transactions of the non-banks – where the average size of each transaction is certainly rather small – they have risen slightly.

In our estimate for 1986 we extrapolated the development of unit costs for exchange transactions between 1989 and 1995 noted above. For large sums, the unit costs for non-banks are significantly higher than in 1989 in relative terms. For small sums, the representative unit cost is probably at the same level as in 1989.

Level of transaction costs of non-bank business

The transaction costs can now be obtained by multiplying the foreign-exchange transactions – graduated by the volume of transacted sums – with the unit cost for the exchange in each case. Alternatively, a mean unit cost weighted with the transaction size categories can also be calculated, and can be used later for the entire volume of transactions. It is obtained by multiplying the share of various transaction size categories in the total volume of transactions with the unit cost for the exchange in each case. This latter method will be used here.

Current account transactions

Because very different breakdowns of size category are obtained depending on whether current account transactions or capital account transactions are used, the costs for these two types of transaction must be calculated separately. Let us initially examine the costs for current account transactions.

Table 4.4. Average foreign exchange unit costs for current account transactions in 1986, 1989 and 1995 (all figures in %)

	Proportion of individual size categories of transactions in total volume of transactions (acc. to Table 3.6)[1]	Exchange unit cost for individual transaction size (acc. to Table 4.4)			Contribution to average foreign exchange unit cost		
Year		**1986**	**1989**	**1995**	**1986**	**1989**	**1995**
Large sums							
ECU 100,000 and above	54.0	0.4	0.3	0.2	0.216	0.162	0.108
ECU 10,000 to 100,000	37.5	0.6	0.5	0.4	0.225	0.1875	0.15
ECU 1,000 to 10,000	7.7	0.7	0.6	0.6	0.0539	0.0462	0.0462
Small sums							
less than ECU 1,000	0.8	15.0	15.0	20.0	0.12	0.12	0.16
Average foreign exchange unit cost for current account transactions:					0.6149	0.5175	0.4642

[1] Plus IFO estimates to balance gaps in rounding of figures.

As can be seen in Table 4.4, the unit costs for larger sums have decreased. This is especially true for very large amounts. Contrary to this, unit costs for smaller sums increased. There is no evidence of a well functioning foreign exchange market for smaller sums, despite the efforts set up in the single market programme (see Section 5.2).

In 1993, the current account transactions between the EUR-12 Member States amounted to a volume of ECU 2,291 billion. An extrapolation for 1995 gives only a slightly higher volume of

about ECU 2,300 billion (see Table 3.8). If the average unit cost of 0.4642% is now applied to this sum, then we obtain transaction costs for the foreign exchange trade of the non-banks of ECU 10.7 billion for the year 1995 – with the exception of the cash trade and without taking into account the higher costs for payments that do not represent transfers.

For 1989, the corresponding calculation yields a somewhat higher average transaction unit cost of 0.5175% (Table 4.4). In contrast, the transaction volume was slightly lower, namely at ECU 1,828 billion (Table 3.8). This yields transaction costs of around ECU 9.5 billion for 1989. The relevant calculation produces transaction costs of just short of ECU 8.5 billion for 1986.

Higher unit costs for payments other than transfers or cheque payments

It can be seen from Table 3.7 that 94.7% of the payments made in the year 1989 and 93.5% of those made in 1995 were transfers or cheque payments. The unit costs calculated above apply only to these payments. The remainder of the payments were made with credit cards, by cash or other more cost-intensive methods of payment (Eurocheques and travellers' cheques). For all these latter methods of payment, additional costs accrue that go beyond the exchange unit costs determined in Table 4.4. The costs of the cash trade are not calculated here but are accounted separately in Section 4.2.3.

Our data searches showed that total commissions of around 2.5% were charged for cross-border transactions with Eurocheques and travellers' cheques in 1995 – measured by the volume of transactions.[5] In the years 1989 and 1986 the commission for a payment made using these cheques was probably at the same level. The costs of credit card transactions have dropped: in 1995 only about 1.5% of the sum paid had to be spent on commissions whereas in the years 1989 and 1986 the figure was still 2.5% and 3% respectively.

The volume of cross-border payments within the EUR-12 using Eurocheques and travellers' cheques was probably around ECU 10 billion in the years 1989 and 1995 – with the assumption of no growth. With an 'additional unit cost' of 2%, this yields supplementary costs of ECU 200 million per annum. In 1986 – for a volume that will have been around ECU 7 billion – additional costs of ECU 140 million accrued through the use of this comparatively expensive method of payment.

The volume of credit card transactions comprised around 1% of the total volume of cross-border transactions by the non-banks in 1995 (see Table 3.7): this amounts to ECU 53 billion. With an 'additional unit cost' for credit card transactions of 1% in 1995 we obtain supplementary costs of ECU 530 million. For 1989 the relevant calculation yields transactions of a good ECU 10 billion; with an 'additional unit cost' of 2% for 1989 we obtain supplementary costs of ECU 200 million. For 1986 – due to the comparatively low volume of transactions with credit cards at that time – the calculation yields supplementary costs of only ECU 35 million.

Capital account transactions

A different breakdown into transaction size categories is used for capital transactions than for current account transactions. These payments have a greater volume on average. We must

[5] This yields an 'additional unit cost' – i.e. the rate that goes beyond the average unit cost for current-account transactions of around 0.5% – of about 2%.

therefore calculate the capital account transactions separately. However, the only data we possess relates to the size category breakdown for Belgium from the year 1989. We therefore made an extrapolation on the basis of this sample for the breakdown of size category for the EUR-12 in 1995. It is shown in Table 3.6.

By analogy with the calculations for the current account transactions, we calculated the average foreign exchange unit costs for capital transactions of the years 1986, 1989 and 1995 in Table 4.5.

Table 4.5. Average foreign exchange unit costs for capital account transactions in 1986, 1989 and 1995 (all figures in %)

	Proportion of individual size categories of transactions in total volume of transactions (acc. to Table 3.6)[1]	Exchange unit cost for individual transaction size (acc. to Table 4.3)			Contribution to average foreign exchange unit cost		
Year		1986	1989	1995	1986	1989	1995
Large sums							
ECU 100,000 and above	83.9	0.4	0.3	0.2	0.3356	0.2517	0.1678
ECU 10,000 to 100,000	8.0	0.6	0.5	0.4	0.048	0.04	0.032
ECU 1,000 to 10,000	8.0	0.7	0.6	0.6	0.056	0.048	0.048
Small sums							
less than ECU 1,000	0.1	15.0	15.0	20.0	0.015	0.015	0.02
Average foreign exchange unit cost for capital account transactions:					0.4546	0.3547	0.2678

[1] Plus IFO estimates, to balance gaps in rounding of figures.

If we now multiply the unit cost of 0.2478% for 1995 shown in Table 4.5 by the volume of gross capital transactions calculated in Table 3.8 (ECU 3,000 billion in 1995), then we obtain transaction costs of ECU 8.0 billion. For the years 1989 and 1986, this calculation yields transaction costs of ECU 7.7 and 5.1 billion respectively.

Costs of hedging payments of the non-banks

In the third section of Chapter 3 ('Volume of foreign exchange and breakdown according to market segments') it was shown that in the years 1992 and 1995, 45% and 39% respectively of all payments of non-banks take place on the spot market. Most of these payments are not hedged payments. Generally, not all payments on the spot market are unhedged payments; in particular those for which the service is rendered at the same time as the payment is made are not unhedged. In the following, however, we will assume for almost all transactions that a time interval elapses either between the conclusion of a contract and the rendering of the service or between the latter and the date of the payment, i.e. that spot transactions represent unhedged payments. Only for spot transactions do the unit costs just calculated apply.

In contrast, we take for granted that all payments in the forward market are hedged payments. For hedged payments, additional hedging costs apply.

Volume of hedged payments

According to the data in Table 3.5, non-bank outright transactions in the EUR-12 amounted to ECU 1,947 billion in 1995. If we apply the share of 53% – only this proportion of foreign-exchange business represents intra-EU transactions – to this sum, then we obtain a figure of ECU 1,032 billion for outright transactions. These outright transactions are used almost exclusively to hedge current account operations. This means that almost 45% of the entire current account transactions, amounting to ECU 2,300 billion in 1995 (Table 3.8), are hedged.

The corresponding arguments yield a hedging rate of almost 78% for the capital account transactions: intra-EU swap transactions by non-banks amounted to ECU 2,336 billion in 1995 (0.53 times ECU 4,407 billion) as against ECU 3,000 billion of intra-EU capital transactions in the same year.

For the year 1992, the same calculation indicates that 49% of current account transactions and 62% of capital account transactions are hedged. We have extrapolated the decreasing trend to hedge current account transactions and the increasing trend to hedge capital account transactions for the years 1989 and 1986.

Costs of hedging

We obtained the hedging costs incurred by the companies from our questionnaire. More details are available on the method that we used to derive this data in Excursus 1 in Appendix C. Table 4.6 shows the results of the question relating to hedging costs.

Table 4.6. Hedging costs for firms (figures in % of foreign trade)

			Hedging costs based on the IFO survey[1]
	1986(e)	1989(e)	1995
Germany			0.89
France			0.41
UK			0.31
Italy			0.30
Spain			0.36
Extrapolation to EUR-12[2]	0.6	0.55	0.51

e = Estimation based on an additional question on hedging costs relating to the evolution of these costs.
[1] *Source*: Survey under supervision of the IFO Institute in the EU Member States mentioned.
[2] Weighted average based on the share of the indicated Member States in the total intra-EU current account volume in the relevant year.

Despite the exchange rate turmoil in the EMS of 1992–93, which should have increased exchange rate risk and hedging unit costs, we found a trend of decreasing unit costs. This should be mainly a consequence of tougher competition for financial services after the deregulation of European financial markets. Better quality of foreign exchange management due to the increase of personnel and equipment in foreign exchange departments of enterprises (see Table 4.8) may also have contributed to the lowering of unit hedging costs.

By combining the results of our survey in 1995, which showed that a unit cost for hedging business of 0.51% is to be expected, with the volume of the hedged intra-EU current account transactions (ECU 1,032 billion in 1995), there accrued additional costs due to hedging transactions of ECU 5.3 billion. In 1992, the corresponding figure is ECU 5.9 billion. According

to responses to our questionnaire about the evolution of the hedging costs in the last ten years and according to data of intra-EU current account transactions in the years 1989 and 1986 (see Table 3.8), the additional costs due to hedging transactions are about ECU 5.5 and 5.0 billion respectively.

The volume of capital transactions in 1995 was ECU 3,000 billion (see Table 3.8). Of this, transactions amounting to ECU 2,336 billion were hedged. Hedging costs for capital account transactions are a lot lower than for current account transactions. If we apply a unit cost rate of 0.15% – that is what we surveyed at different banks – we have additional costs for hedging capital account transactions of ECU 3.5 billion in 1995. In the years 1992, 1989 and 1986, the hedging costs for capital transactions were 2.6, 1.9 and 0.8 billion ECU, respectively.

4.2.2. Cash trade

Exchange unit costs for cash trade

Information on the unit costs for the trade in notes and coins is easily accessible. It can be obtained from the daily newspapers or from postings in banks. Table 4.7 lists the commission rates for cash transactions in all EU countries for exchanging the relevant domestic currency against all other EU currencies. To obtain the data for the year 1989, we made use of a study by the Commission. We calculated the 1995 data ourselves, in most cases on the basis of several sources (such as asking several banks in a single country).

Table 4.7 shows a clear increase of spreads in the cash trade. The exchange unit costs in 1995 are higher than in 1989 for almost every currency pair. However, the surveys in the individual countries need not reflect the representative unit cost for the cash trade by any means, as this can fluctuate considerably from one bank to another and can also deviate from the spreads given in the daily newspapers.

And yet it is very improbable that we always determined a markedly high exchange spread for each country and for almost every currency pair in our surveys in 1995. In reality, we obtained the exchange unit costs in various ways (telephoning banks abroad, various daily newspapers) and determined the average value from these. It is also improbable that particularly low spreads were systematically used in the investigation of the European Commission (1990) of the exchange spreads in the cash trade.

In view of the large number of currency pairs examined, it is on the whole legitimate to infer the actual exchange costs incurred on average from the data in Table 4.7. From this it appears that the exchange costs in cash transactions have risen rather than declined. In only 36 of 110 currency pairs did the exchange costs drop in the period of time considered above. With the exception of two countries, Greece and Spain, where the spreads for all EU currencies were reduced, the exchange unit costs declined in only 16 of 90 currency pairs (in nine EU countries). In all other currency pairs the exchange costs rose.

Table 4.7. Spreads (in %) between buy and sell rates for foreign coins and notes

Currency		UK	D	F	NL	B	I	DK	GR	E	IRL	P
		Spreads										
UKL	1989	X	6.3	8.3	10.0	5.0	1.7	3.3	4.1	3.8	3.0	1.6
	1995	X	9.6	11.6	10.7	5.6	2.2	4.2	3.0	3.1	6.6	6.6
DM	1989	6.2	X	6.4	3.6	4.6	1.8	1.9	4.1	3.8	5.5	1.3
	1995	9.8	X	7.1	3.7	2.2	3.6	2.2	3.0	3.3	6.7	6.7
FF	1989	6.4	6.4	X	9.5	5.3	1.9	4.7	4.1	3.8	5.4	1.6
	1995	8.9	8.1	X	8.8	6.9	2.5	5.0	3.0	3.2	6.7	2.0
NLG	1989	6.5	2.6	6.5	X	4.9	1.9	2.4	4.1	3.8	5.5	1.4
	1995	9.7	2.8	---	X	2.2	3.6	4.0	3.0	3.1	6.8	1.9
BEF	1989	6.7	5.0	6.7	5.8	X	1.7	8.6	4.1	3.8	4.8	2.8
	1995	7.8	6.2	6.7	5.7	X	7.7	6.3	3.0	3.2	6.9	2.0
LIT	1989	6.4	7.7	11.4	14.0	5.0	X	11.1	4.1	3.8	6.1	6.2
	1995	6.4	16.0	14.3	19.1	20.8	X	15.2	3.0	3.2	6.8	24.1
DKK	1989	5.6	7.3	9.3	11.0	4.1	1.9	X	4.1	3.8	5.5	1.6
	1995	9.6	9.2	11.9	9.1	6.8	2.8	X	3.0	3.1	7.4	2.2
GRD	1989	9.9	48.2	19.7	23.1	25.0	2.1	15.3	X	5.6	6.9	---
	1995	7.1	34.0	25.6	29.3	51.0	7.7	16.4	X	3.1	8.7	---
PTA	1989	6.9	8.1	10.7	15.4	5.3	2.0	6.9	4.1	X	5.5	2.4
	1995	7.1	11.9	16.3	13.2	18.0	3.9	8.0	3.0	X	8.0	3.4
IEP	1989	6.7	6.6	---	10.7	4.4	1.9	4.5	4.1	3.8	X	1.6
	1995	8.5	8.1	9.9	10.3	4.1	3.0	6.6	3.0	2.8	X	2.1
PTE	1989	6.7	30.0	19.2	21.7	22.8	1.9	14.5	4.1	5.7	6.8	XX
	1995	8.3	17.0	24.1	18.7	47.6	4.8	13.0	3.0	3.1	8.7	
Average spread	1989	6.8	12.8	10.8	11.9	8.6	1.9	7.3	4.1	4.2	5.5	2.3
	1995	8.3	12.3	14.2	12.3	16.5	4.2	8.1	3.0	3.1	7.3	5.7
Average change in spreads in the various countries between 1989 and 1995 for exchanging into all EU currencies, in %												
		18.2	-4.4	23.8	3.2	47.7	54.9	9.5	-34.7	-34.1	25.1	59.8
For information: Average change in spreads of all EU countries for exchanging into all EU currencies between 1989 and 1995: +19.8 %												

'---' means that no quotation is available.

Source: For 1989: *European Economy* (1990), source quoted there: daily newspapers, postings in banks; for 1995: daily newspapers, postings in banks.

Note: Differences in totals result from rounding of figures.

Only in three of 11 Member States (Germany, Spain, Greece) did the exchange costs drop compared with the average of all EU currencies. In the other eight Member States they increased – in some cases considerably. On the whole, over all countries and currency pairs, the average increase in the spreads for cash transactions was about 20%.

The greatest increases occurred in those countries that had already had very low cost spreads in 1989 (Italy and Portugal). Greece and Spain also belong to the group of countries in which the absolute level of the spreads was low in 1989. It has, however, remained low in these countries. The highest spreads in 1995 were in Portugal, France, the Netherlands and – after very strong growth – in Belgium.

The increase of the bid-ask spreads for cash foreign exchange trade can be viewed as an attempt of banks to stabilize their profits from total foreign exchange trade; these profits have come under pressure through diminishing margins in interbank trade (Table 4.1) and large customer foreign exchange trade (Table 4.3).

4.2.3. Level of transaction costs for cash trade

The volume of cash transactions between the EUR-12 countries was ECU 150 billion in 1995 (see Table 3.7 and the relevant discussion). If we apply the average unit cost for cash exchanges

of 5.3% (= half the spread between the buy and sell rate) for the year 1995 – weighted with the trading volumes – then we obtain transaction costs of ECU 7.95 billion.

In 1989, the intra-EU cash trade was only ECU 80 billion (see Table 3.7 and the relevant discussion). The exchange unit cost for cash transactions was lower. Weighted with the trading shares of the relevant countries in the total intra-EU trade, this rate was 8.9%. If half this spread is apportioned to the trading volume, then we obtain transaction costs of a good ECU 3.5 billion. An average transaction unit cost of 9% can also be estimated for the year 1986. If we take half of this, we obtain costs of ECU 2.7 billion for a volume of cash trade of ECU 60 billion in 1986.

4.2.4. Company internal costs

Problems in acquiring data

The acquisition of data relating to the costs incurred by companies is not easy. This is partly because such costs are incurred in the various departments and branches of a company that deal in some way with the management of foreign exchange. So what is really needed is an imaginary 'super cost accounting' in companies that finds out specifically which costs are incurred as a result of foreign exchange management. Such an exact cost accounting would hardly be even approximately feasible in most companies. Another reason why it is very hard to obtain such data – even if such a super cost accounting were to exist in some company or other – is that companies are hardly likely to let such figures get into the hands of an outsider.

So we cannot use any statistics to obtain internal company costs. Consequently, we have used our mail surveys as an instrument to find out something about these costs. Certainly, the first problem mentioned above of the lack of a super cost accounting still remains. If there were such an exact reporting of all the costs incurred due to foreign exchange management, this certainly would not yet ensure that those who answer our questionnaire would have access to this information. Our questionnaires tend as a rule to be answered by the foreign exchange management department rather than the cost accounting department. So it must be supposed that those who answer the questionnaire may be unable to state all the cost elements relating to the company's internal foreign exchange management.

In addition, experience teaches us that there is a tendency for those who answer a questionnaire to underestimate any costs incurred by themselves rather than to overestimate them. On the whole, it can be supposed that the results of our questionnaires show a slight bias towards yielding results for the foreign exchange management costs that are too low.

Previous estimates

Hitherto only very few estimates have been made of the costs of foreign exchange management in companies. In the study entitled 'Strategies for the ECU'[6] internal company costs were given on the basis of a survey. Those companies which do business overwhelmingly within Europe incur foreign exchange management costs of between 1 and 2% of the volume of their exports. According to this study, companies with a different export structure have lower costs.

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[6] Ernst & Young, The National Institute of Economic and Social Research, Association for the Monetary Union of Europe, 'Strategies for the ECU', Landsberg am Lech, 1990, pp. 82–5.

In the article entitled 'Transaction costs' from the *One Market, One Money* study issued by the European Commission, which has already been quoted, the foreign exchange management costs of the EUR-12 in 1989 were estimated at between ECU 3.6 and 4.8 billion in 1989. These figures were based on the study by Ernst & Young just mentioned.

Although a series of other studies[7] which had foreign exchange management as their subject do exist, they deal merely with the objectives, the methods and the practice of foreign exchange management but do not examine the costs incurred in this process.

The IFO survey of internal company costs

Costs for personnel and equipment

There was no alternative to conducting our own mail survey of internal company costs in view of the sparse data available. Table 4.8 shows the results. More details of this mail survey can be found in Excursus 1 in Appendix C.

Table 4.8. Costs for personnel and equipment (as a percentage of foreign trade of responding firms)

			Costs for personnel and equipment based on the IFO survey[1]
	1986(e)	1989(e)	1995
Germany			0.32
France			0.38
UK			0.35
Italy			0.30
Spain			0.38
Extrapolation to EUR-12[2]	0.32	0.33	0.34

e = Estimation based on an additional question on personnel and equipment costs relating to the evolution of these costs (see Table 4.9).

[1] *Source*: Survey under supervision of the IFO Institute in the EU Member States mentioned.

[2] Weighted average based on the share of the indicated Member States in the total intra-EU current account volume in the relevant year.

If we apply the unit cost of 0.34% that we determined in Table 4.8 to the intra-EU current account transactions in 1995 (ECU 2,300 billion), then we obtain a figure of ECU 7.8 billion for the internal company costs for intra-EU transactions.

[7] See, for example, Luc A. Soenen (ed.), *Foreign Exchange Management*, Patrington GB, 1991; Luc A. Soenen/ R. Aggarwal, 'Banking Relationship and Cash and Foreign Exchange Management of Companies in the UK, the Netherlands and Belgium', in: *Management International Review*, Vol. 28, 1988, p. 57–69; Beate Reszat, *Währungsmanagement von Unternehmen* (Currency management by companies), Stuttgart, 1991; Ehrenfried Pausenberger/Harald Völker, *Praxis des internationalen Finanzmanagements* (Practice of international financial management), Wiesbaden, 1985.

In order to obtain a picture of the way in which these costs have developed, we also asked the companies whether and how these costs have changed since the end of the 1980s. The results are listed in Table 4.9.

Table 4.9. Change of costs for personnel and equipment for firms since the end of the 1980s (as a percentage of foreign trade of the responding firms)

	Since the end of the 1980s these costs have...[1]		
	...increased	... not changed	... decreased
Germany	44	37	19
France	32	43	25
UK	22	75	3
Italy	39	38	23
Spain	34	49	17
Extrapolation to EUR-12[2]	35	47	18

[1] *Source*: Survey under supervision of the IFO Institute in the EU Member States mentioned.
[2] Weighted average based on the share of the indicated Member States in the total intra-EU current account volume in the relevant year.

According to the results of our questionnaire survey, the costs for personnel and equipment appear to have risen slightly. This is probably due to the general increase of labour costs throughout Europe in the last decade as well as to a strong increase in staff of foreign exchange departments.

It should be noted that we asked about the costs in relation to the volume of foreign trade, and the latter also rose in the period of the survey. We assume an EU-wide growth of the unit costs for personnel and equipment of around 3% annually. The unit costs resulting from such growth for the years prior to 1995 are listed in Table 4.8 in the columns for the years 1986 and 1989.

The total costs for personnel and equipment are obtained by multiplying the unit costs and the intra-EU current account volume according to Table 3.8: for 1989 it is ECU 6.0 billion and for 1986 it is ECU 4.4 billion. These figures can also be found in Table 4.11 under line IV.

Costs induced by prolonged transmission periods for payments

Additionally, firms suffer more from costs that accrue through longer transmission periods for intra-EU payments than for payments within national borders. We asked in our survey for these additional transmission time periods for intra-EU payments. Results can be found in Table 4.10.

The data for 1986 and 1989 are based on answers to a further question concerning the evolution of these transmission periods.

From the data consisting of opportunity interest rates,[8] of the intra-EU current account volume and of the additional transmission period for intra-EU payments based on our survey, we were able to calculate the opportunity costs caused by prolonged transmission periods for each country in which we launched the survey. These results were projected to the whole EUR-12.

Table 4.10. Additional transmission period for payments between the local currency and another EU currency compared to payments in local currency (average number of days)

			Additional transmission period for payments with EU currencies on one side based on the IFO survey[1]
	1986(e)	1989(e)	1995
Germany	2.4	2.2	2.0
France	2.0	1.8	1.4
UK	4.0	3.6	3.1
Italy	2.6	2.5	2.3
Spain	3.0	2.5	2.0
Extrapolation to EUR-12[2]	2.7	2.4	2.1

e = Estimation based on an additional question on transmission period relating to the evolution of the time period for transmission over the last ten years.

[1] *Source*: Survey under supervision of the IFO Institute in the EU Member States mentioned. Answers weighted with turnover according to the official statistics.

[2] Weighted average based on the share of the indicated Member States in the total intra-EU current account volume in the relevant year.

For the year 1986 the costs for EUR-12 firms from additional transmission periods amounted to ECU 902 million. Because of the strong increase in interest rates and current account volume, these costs were clearly higher in 1989 at ECU 1,439 million. Until 1995 interest rates came down on average in the EUR-12, current account volume expanded only at moderate rates and the shortening of prolonged transmission periods have shown through more strongly, so that these costs came to ECU 982 million. The figures for the intermediate years are given in Table 4.11.

4.3. Adding the costs

The individual cost blocks that result from the juxtaposition of different European currencies must now be added together to obtain the total costs of intra-EU foreign exchange management. Table 4.11 lists all the components of the total intra-EU foreign exchange management costs calculated separately so far. The last line shows the total costs of managing multiple currencies in relation to the GDP of EUR-12: on average of the last decade it is just below 1%.

The fluctuations of this share are based on multiple influence factors, as can be seen in Tables 4.12 and 4.13. The most important reason for the strong increase of this share between 1986 and

[8] We have applied the three-month interest rate, even though this rate is likely to be the lower bound of the opportunity interest rate.

1989 is probably the capital market liberalization in the EU coming into effect in this time period. This caused a extraordinary increase of capital account transactions as well as transactions to hedge capital account flows. From 1989 to 1993 the increase of foreign exchange flows (Table 4.12) exceeded the decrease of unit costs (Table 4.13) approximately by the growth rate of GDP of the EUR-12. This means that total foreign exchange management costs remained stable relative to GDP. The decline of the ratio of total costs to GDP in the last three years is mainly caused by the stagnation (or moderate increase) of some foreign exchange flows combined with an ongoing decrease of unit costs.

For many interested persons it is important to know whether all of these costs can be eliminated as a consequence of European Monetary Union (EMU). In our opinion, most, but not all, of the costs can be avoided through EMU:

(a) The costs under position I of Table 4.11 (level of transaction costs of interbank business) will probably continue to exist in EMU; banks should shift much of their autonomous transactions (mainly arbitrage and speculation transactions) now carried out between EU currencies to the future Euro/US dollar market.
(b) The company internal costs (position IV in Table 4.11) may not be brought down to zero in the EMU. Similar to the banks, enterprises will also shift some of their foreign exchange business from intra-European currency markets to the future Euro/US dollar market. Staff and equipment will remain the same; the foreign exchange business is shifted and not reduced in the enterprises.
(c) The opportunity costs for the additional transmission periods for payments – relative to the intra-country transmission period – will only vanish if a real pan-European financial market is established. EMU can assist the Europe-wide financial market, but additionally, there is need for substantial further deregulation for its set-up.

Despite the fact that not all of the total foreign exchange management costs of Table 4.11 can be saved through EMU, its potential of cost saving is considerable: we estimate that transaction costs of about 0.8% of EU GDP may be saved through EMU.

Table 4.11. Evolution of foreign exchange management costs for intra-EUR-12 transactions between 1986 and 1995 (in billion ECU per year)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
I. Level of transaction costs of interbank business[1]	5.5	6.3	7.2	9.0	9.1	10.5	11.4	13.8	13.0	13.1
II. Level of transaction costs for non-banks – except for cash trade	19.6	21.5	23.0	25.0	26.5	27.4	28.3	28.3	28.5	28.2
IIa. Current account transactions	8.5	8.3	8.5	9.5	9.7	10.4	10.9	10.8	10.8	10.7
Supplement for payments with Euro- and travellers' cheques	0.14	0.16	0.18	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Supplement for payments with credit cards	0.04	0.07	0.13	0.2	0.3	0.4	0.5	0.6	0.6	0.5
Supplement for hedging costs for current account transactions	5.0	5.1	5.4	5.5	5.7	5.8	5.9	5.7	5.6	5.3
IIb. Capital account transactions	5.1	6.7	7.3	7.7	8.5	8.2	8.2	8.1	8.1	8.0
Supplement for hedging costs for capital account transactions	0.8	1.2	1.5	1.9	2.1	2.4	2.6	2.9	3.2	3.5
III. Level of transaction costs for non-banks – cash trade	2.7	3.0	3.3	3.6	4.1	4.6	5.2	6.0	6.9	8.0
IV. Company-internal costs	5.3	5.4	6.0	7.4	7.9	8.5	9.2	8.9	8.7	8.8
Costs for personnel and equipment	4.4	4.5	5.0	6.0	6.4	7.0	7.7	7.8	7.8	7.8
Opportunity costs for additional transmission period for payments	0.9	0.9	1.0	1.4	1.5	1.5	1.5	1.1	0.9	1.0
Total costs for foreign exchange transactions (I. + II. + III. + IV.)	33.1	36.2	39.5	45.0	47.6	51.0	54.1	57.0	57.1	58.1
Total costs as percentage of GDP of the EUR-12	0.93	0.96	0.97	1.01	1.00	0.98	0.99	1.03	0.99	0.96

Note: The data for the years 1986, 1989 and 1995 were determined as described in the text. Some of the data for the years in between are interpolated, some of them refer to calculations using data available to us but not commented on in the text.

[1] Only the autonomous interbank transactions are taken into account here. It is assumed that these costs are not shifted to the customers of the foreign exchange business of banks.

To make the interpretation of the trend of the figures in Table 4.11 more transparent, we also show the underlying development of foreign exchange flows (Table 4.12) and unit costs (Table 4.13).

Table 4.12. Evolution of foreign exchange flows for intra-EUR-12 transactions between 1986 and 1995 (in billion ECU per year)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
I. Level of transactions of interbank business[1]	5500	7000	9000	11300	13000	15000	19000	23000	26000	29200
II. Level of transactions of non-banks – except for cash trade										
IIa. Current account transactions	1382	1408	1577	1828	1935	2117	2282	2291	2300	2300
of which: payments with Euro- and travellers' cheques	7	8	9	10	10	10	10	10	10	10
of which: payments with credit cards	1.4	3	6	10	18	25	32	43	49	53
of which: hedged current account transactions	829	870	950	1005	1050	1100	1112	1100	1100	1032
IIb. Capital account transactions	1118	1592	1923	2172	2565	2633	2718	2809	3000	3000
of which: hedged capital account transactions	559	800	1000	1260	1400	1600	1703	1900	2100	2336
III. Level of transactions of non-banks – cash trade	60	66	73	80	90	100	110	125	137	150
IV. Company-internal costs										
current account transactions	1382	1408	1577	1828	1935	2117	2282	2291	2300	2300
current account transactions	1382	1408	1577	1828	1935	2117	2282	2291	2300	2300
Total foreign exchange transactions (I. + II. + III. + IV.)	10842	13155	16115	19493	22003	24702	29249	33569	36996	40381

Note: The data for the years 1986, 1989 and 1995 were determined as described in the text. Some of the data for the years in between are interpolated, some of them refer to calculations using data available to us but not commented on in the text.

[1] Only the autonomous interbank transactions are taken into account here. It is assumed that these costs are not shifted to the customers of the foreign exchange business of banks.

Table 4.13. Evolution of foreign exchange unit costs for intra-EUR-12 transactions between 1986 and 1995 (in % of the volume of transactions)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
I. Unit costs of interbank business[1]	0.1	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.045
II. Unit costs for non-bank transactions – except for cash trade										
IIa. Average unit costs for current account transactions	0.6149	0.59	0.54	0.5175	0.5	0.49	0.48	0.47	0.47	0.4642
Additional unit costs for payments with Euro- and travellers' cheques	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Additional unit costs for payments with credit cards	2.5	2.4	2.2	2.0	1.9	1.8	1.7	1.5	1.3	1.0
Unit costs for hedging current account transactions	0.6	0.59	0.57	0.55	0.54	0.53	0.53	0.52	0.51	0.51
IIb. Average unit costs for capital account transactions	0.4546	0.42	0.38	0.3547	0.33	0.31	0.3	0.29	0.27	0.2678
Unit costs for hedging capital account transactions	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
III. Unit costs for non-banks – cash trade	4.5	4.5	4.5	4.5	4.5	4.6	4.7	4.8	5.0	5.3
IV. Company – internal unit costs										
Unit costs for personnel and equipment	0.32	0.32	0.32	0.33	0.33	0.33	0.34	0.34	0.34	0.34
Unit costs for additional transmission period for cross-border payments (delay times interest-rate costs)	0.07	0.06	0.06	0.08	0.08	0.07	0.07	0.05	0.04	0.04

Note: The data for the years 1986, 1989 and 1995 were determined as described in the text. Some of the data for the years in between are interpolated, some of them refer to exact calculations using data available to us but not commented on in the text.

[1] Only the autonomous interbank transactions are taken into account here. It is assumed that these costs are not shifted to the customers of the foreign exchange business of banks.

5. The impact of the single market on the costs of foreign exchange transactions

5.1. Introduction

This chapter addresses the question: How has the establishment of the single market in 1992 and the experience of increasing economic integration of the countries of the EU since the mid-1980s affected the risks and costs associated with their intra-European trade and investment transactions? Any attempt to answer such a question requires an appropriate 'anti-monde,' or 'counterfactual' in Robert Fogel's terms – i.e. a discussion of how the European economy would have looked like and behaved without the single market, *ceteris paribus*.

Holding other things constant in this case is a difficult matter, because they are intimately tied up with the evolution of the EU. In other words, it is necessary to address the question to what degree 'other things' are exogenous or endogenous events.

The progress of the single market programme (SMP), which began in the mid-1980s and found a last important stage in the 'Economics of 1992' was jarred by the turmoil in the ERM in the autumn of 1992, and the subsequent dramatic exits by the UK and Italy, the widening of the exchange rate intervention bands from ±2.25 to ±15% for the currencies remaining within the ERM and a rise in currency volatility within the EU. (For documentation see the tables and graphs on currency volatility – the standard deviation of the percentage change of daily and monthly exchange rates – for five major countries of the EU and for Ireland in two epochs: 1985 to autumn 1992 and autumn 1992 to 1995, which are in Appendix E.)

In the literature on the EU as an optimal currency area it is a widely accepted view that the source of the ERM turmoil was an asymmetric shock to the German economy following German unification and the peculiar combination of economic policies (labour, monetary and fiscal) employed in Germany to address this shock, at the expense of the smooth functioning of the European Monetary System (EMS). The trend of increasing nominal and real integration in Europe since the beginning of the 1980s and the harmonization of economic policies, especially monetary policy, received a massive jolt from this truly exogenous shock.

Undoubtedly, this break of historical integration trends was a main political challenge to Europe, which found an answer in the decision to undertake substantial steps towards further European integration: the Economics of 1992 and the Maastricht accord on monetary integration.

Besides within European trends and shocks, EU foreign exchange markets have also been affected by the globalization of capital markets, by trends in financial markets leading to greater specialization in foreign exchange markets and in new risk management instruments, especially swaps and options, so diminishing transaction and hedging costs for the whole world. One could also perceive the deregulation and greater integration of capital markets in Europe, which is a main aspect of the SMP, as part of a world-wide modern trend.

It was the flood of global capital market streams which made it impossible for misaligned ERM currencies to stay within intervention points. The central banks of the UK, Italy and Spain, etc., proved too weak to counter this force.

The tasks of this chapter are:

(i) to present a description of the channels, especially capital market deregulation and integration, of the effect of the single market on transaction costs;
(ii) to discuss an *antimonde* and to suggest ways in which the level of unit costs faced by firms in a selection of EU countries in 1994 and their changes since the late 1980s can be associated with EU integration, rather than global trends or EU non-ERM currency volatility; and
(iii) to empirically evaluate the impact of the SMP by a disaggregated intercountry analysis and a regression analysis of inter-firm cost differences in the major countries.

5.2. Single market measures which affect foreign exchange conversion costs and unit costs of foreign exchange transactions

The single European market is being realized by the application of a large number of individual supply-side measures. These measures are all aimed at dismantling national protective mechanisms as far as possible (deregulation) while at the same time establishing minimum standards across Europe (harmonization). The measures treated below are of particular interest for our study.

5.2.1. Banking law

The Commission has issued two directives for coordinating banking law. Both of them contain rules for establishing a single financial market in which banks can act with as few restrictions as possible in every other Member State of the EU.

The initial move towards the formulation of a common market for banking services came in the First Banking Directive,[9] which required the Member States to establish systems for authorizing and supervising banks and other credit institutions that accept deposits and lend money. This directive created a basic right of establishment whereby a bank in one country could offer banking services in any other Member State, provided it complied with the conditions and supervision applied to local banks.

However, for a real single banking market a basic right of establishment is not enough. Banks wishing to establish a branch elsewhere in the EU still required authorization from the host country. So in 1989 the Commission issued a Second Banking Directive,[10] which set out the principle of the right of banks to trade financial services and to establish branches throughout the EU, on the basis of a single authorization or 'licence' from their home country supervisor ('home country control').[11] The Second Directive for coordinating banking law lays down a list of banking activities that may be practised on the basis of this single authorization in each EU Member State. These also include the following activities that are of particular importance to our study:

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9 First Directive for coordinating banking law 77/780/EEC, modified by Directives 85/345/EEC, 86/137/EEC and 86/524/EEC.

10 Second Directive for coordinating banking law 89/646/EEC.

11 There are some exceptions to 'home country control', such as when the monetary policy or a regulation for consumer protection of the host country requires it.

(a) services for performing payment transactions;
(b) issuing and administration of means of payment;
(c) trading for own account or for account of customers in:
    (I) foreign exchange,
    (ii) futures and options.

The Second Directive on coordinating banking law was supplemented by the introduction of several measures aimed to ensure identical minimum standards throughout the Community in the financial services sector. These included regulations about the supervision of banks, about drawing up annual financial statements, and rules for harmonizing different terms and concepts (such as 'companies' own capital' or 'solvency coefficient'). This should allow identical framework conditions to be created for all EU banks as far as necessary.

The single market in the banking sector was incorporated into national law by the last Member States (Spain, Belgium) in 1994 – with a delay of fully a year beyond the deadline laid down in the directive.

5.2.2. Payment systems

The Commission has issued two recommendations in the sector of payment systems. One of them aims to establish a European code of practice for electronic payments,[12] it should offer consumers of electronic payment transactions a high degree of security, availability and convenience and permit the service providers and issuing agencies to enhance their security and productivity. The second recommendation regulates the relationships between holders and issuers of payment cards under specific individual conditions.[13] Its principal aim is to improve consumer protection (including as regards contracts, liability, data protection, and validity of the cards).

In 1994 the Commission also issued an initial recommendation on the 'transparency of bank conditions for cross-border financial transactions';[14] its aim is to improve the operation of the payment system in order to allow payments to be made more cheaply and reliably and with fewer delays; this recommendation should also provide a basis for making the costs of financial transactions easier for customers to understand and to access.

In view of the evident reluctance to incorporate the measures involved in this recommendation into international law, the Commission has decided to issue a 'Proposal for a Directive on cross-border transfers'.[15] Together with the bundle of measures it contains, this proposal goes beyond the stipulations envisaged in this recommendation. In detail, the following are among its provisions:

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[12] Recommendation of the Commission for a code of practice in the sector of electronic payment transactions 87/598/EEC.

[13] Recommendation of the Commission for payment systems bearing especially on the relationships between card holders and card issuers 88/590/EEC.

[14] Recommendation on the transparency of bank conditions in cross-border financial transactions 90/109/EEC.

[15] Proposal for a directive on cross-border transfers COM (94) 436, as well as an amended proposal for a directive on EU credit transfers COM (95) 264.

(a) Certain minimum requirements will be stipulated as regards transparency for customers before and after the transactions.
(b) With regard to the duration of a transaction, the banks will be obligated to conclude cross-border transactions within the time interval agreed between the client and his bank. If such an agreement does not exist, the transaction must have been concluded within five working days.
(c) Cross-border transactions must be effected such that the relevant sum reaches the recipient in its full amount (avoidance of 'double charging').
(d) If a cross-border transaction is not concluded, the client may request that the full sum involved, up to an amount of ECU 10,000 plus interest and fees, be transferred to his account within 15 working days after his request. [16]

In July 1995 the Commission issued another proposed directive in the field of cross-border payment transactions, the 'Proposal on the finality of accounting in EU payment systems'.[17] The Commission's draft makes particular provision for regulations in the event of the insolvency of a participant in the payment system. The European Council generated a common position in October 1997. This will be discussed by the European Parliament at the end of January 1998.

5.2.3. Capital movements

The free movement of capital is indispensable to ensure the untrammelled availability of services, especially in the sector of financial services. It therefore forms a supplement to the directives on coordinating banking law mentioned above.

However, an even more important aspect is that it creates the preconditions for a single financial area from which clients of financial services can profit directly. In such a single financial area, the citizens and companies of every Member State have access to the financial systems of the other Member States and to all financial products offered in these countries. The 'Directive for the complete liberalization of capital movement'[18] is of outstanding importance in this sector. It requires the dismantling of all barriers to capital movement still existing in the EU.

The directive has been ratified by all EU Member States; the last ratifications were concluded in Greece, Ireland as well as Spain and Portugal in the years 1994, 1993 and 1992.

A much less important measure for liberalizing the movement of capital is the Commission's proposal on asset management and investment by pension fund arrangements.[19] Its aim is to facilitate the exercise of certain freedoms with regard to capital investment.

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16 Directive 97/5/EC of the European Parliament and of the Council of 27 January 1997 on cross-border credit transfers (OJ L 43, 14.2.97, p.25) was subsequently adopted.

17 Proposed directive on the finality of accounting in EU payment systems of 14 July 1995.

18 Directive 88/361/EEC. Directive 92/122/EEC empowers Greece not to release certain capital movements until a later time.

19 Amended proposal by the Commission COM(93) 237.

5.2.4. Hypotheses on the effects of the single market on unit costs and foreign exchange turnover

The measures introduced to complete the single market in financial services mentioned above are aimed to permit more efficient cross-border payment transactions. This should also lead to a reduction in unit costs for foreign exchange transactions.

(a) Market transparency should have been enhanced by the recommendation or the proposed Directive for improving the transparency of cross-border payment transactions; this should apply pressure on transaction costs.
(b) Restrictions to direct market access for demanders of financial services should have been eliminated by the Directive on liberalizing capital movements.
(c) Restrictions to direct market access for suppliers of financial services who wish to base their activities in another EU Member State should no longer exist by virtue of the two Directives on coordinating banking laws and the Directive on liberalizing capital movements.
(d) The harmonization of the 'ground rules' should have led to an intensification of 'fair competition' – defined as competition under similar initial conditions – for customers of foreign exchange trading. This should have become evident from an increased number of service providers, for example.
(e) The recommendation for the use of credit and debit cards should have reduced the price of this service to a significant extent.
(f) The free movement of capital should have led to an increasing shift of foreign exchange trading to locations where it can operate in the most cost-effective way – while maintaining the same level of quality. The increased concentration of foreign exchange trading in efficiently-operated financial centres should produce economies of scale leading to further cost reductions.
(g) The intensification of the competition in foreign exchange trading should not only trigger a single impetus towards reducing costs, but in the course of time also permit 'dynamic profits' as a consequence of the cost reductions in foreign exchange trading outlined above.

In addition to these changes that affect the 'price' parameter of foreign exchange transactions, non-price parameters (quality) should also be affected. The consequences for non-price changes will, however, not be further examined here; our study will deal above all with the costs of foreign exchange management, i.e. price adjustments.

A brief summary of what are probably the most important non-price changes resulting from the single market in financial services must suffice at this point.

(a) The product diversity of the financial services on offer should increase.
(b) The security, availability and convenience for the client of financial services should increase.

The measures aimed at setting up a single market in financial services should affect not only transaction costs, but also lead to changes in the volume of foreign exchange trading.

(a) It can be assumed that the increased competition in foreign exchange trading will improve the spatial allocation of this business. In particular as a result of the free movement of capital, foreign exchange trading should take place in whatever market has

the lowest costs – without forgetting the quality. Because a shift of foreign exchange trading to another location always implies cross-border transactions, the cross-border movement of capital should also increase.

(b) Moreover, foreign exchange trading should greatly increase, especially in vehicle currencies, as it may be supposed that the unit costs for foreign exchange transactions in these currencies will drop particularly markedly. This would be due not least to the effects of economies of scale. Compared with the previous practice of making direct exchanges between the currency of a small country into another currency of minor importance, switching now takes place ever more frequently into a vehicular currency and from this into the actual target currency. This obviously increases the volume of foreign exchange trading.

(c) It may be supposed that a self-amplifying process of multiplication in foreign exchange trading is in progress. This is because an expansion of trade is occurring for many currencies at lower unit costs of foreign exchange transactions and a greater diversity of possibilities to trade in the foreign exchange market, especially as regards 'newer' activities (such as swaps).

In addition to the 'cost-induced' increase of foreign exchange trading, the volume of such trading has probably also increased due to the greater volume of trade in goods and services and of capital movements. The increase in the movement of goods and services in the years between 1985 and 1995 resulted from a set of deregulation measures. It would be inappropriate to discuss this multiplicity of measures with the same degree of thoroughness with which we have dealt with those measures having a direct effect on the costs of foreign exchange management. We will therefore restrict ourselves to the empirically verifiable fact that the single market has also led to a great increase in current transactions between the EU Member States.

An increase in capital transactions may also be assumed, above all due to the liberalization of capital movements. In parallel to the liberalization of capital movements, however, especially in the years 1989 to 1993, two developments should have had an exceptionally strong effect on capital transactions. Tax-evasion transactions were particularly high in these years; since then their volume has decreased somewhat. Capital transactions were also inflated by the interventions resulting from the EMS crises in the years 1992–93. Starting from the high volume of transactions in the period from 1989 to 1992, the gross capital transactions of the non-banks have tended to drop somewhat since 1990 – despite the liberalization of capital movements. Before, in the years between 1986 and 1989, the movements of capital between the EU Member States increased greatly as a result of the single market.

5.3. The *antimonde*

In line with the previous arguments, the hypothesis to be evaluated in this section is that the SMP has had a beneficial impact on reducing unit costs for foreign exchange transactions in the EU. There are two main channels for this effect.

The first, and most important path, is the result of creating a single market for financial services. The Directive for complete liberalization of capital movements in the year 1988 and the Second Directive for coordinating banking of 1989 were preconditions for the functioning of this market. As well, the Commission's recommendations for the transparency of bank conditions for cross-border financial transactions in 1990 and successive directives on cross-

border transactions are expected to reduce the costs of financial transactions and reduce delays in payments. Because these directives and recommendations have been progressively incorporated into national law of the Member States over time, there is no clear beginning date for the single market in financial services. In this study we refer to the late 1980s as the *status quo ante*. With the rise of competition in this market, we expect a decline in unit costs.

The SMP has also progressively eliminated barriers to the movement of goods and non-financial services between 1985 and 1995, particularly in the Economics of 1992 programme, which resulted in a larger volume of trade. This means a larger volume of foreign exchange transactions (discussed in Chapter 3). Together with larger volumes of cross-border capital transactions, we expect that greater scale economies have set in and that these have reduced unit costs. Also, we expect a greater degree of specialization of European capital markets and the provision of more complex hedging instruments for a larger number of currencies than were available before. Scale and specialization effects on the costs of foreign exchange transactions are, then, the second channel for reducing costs.

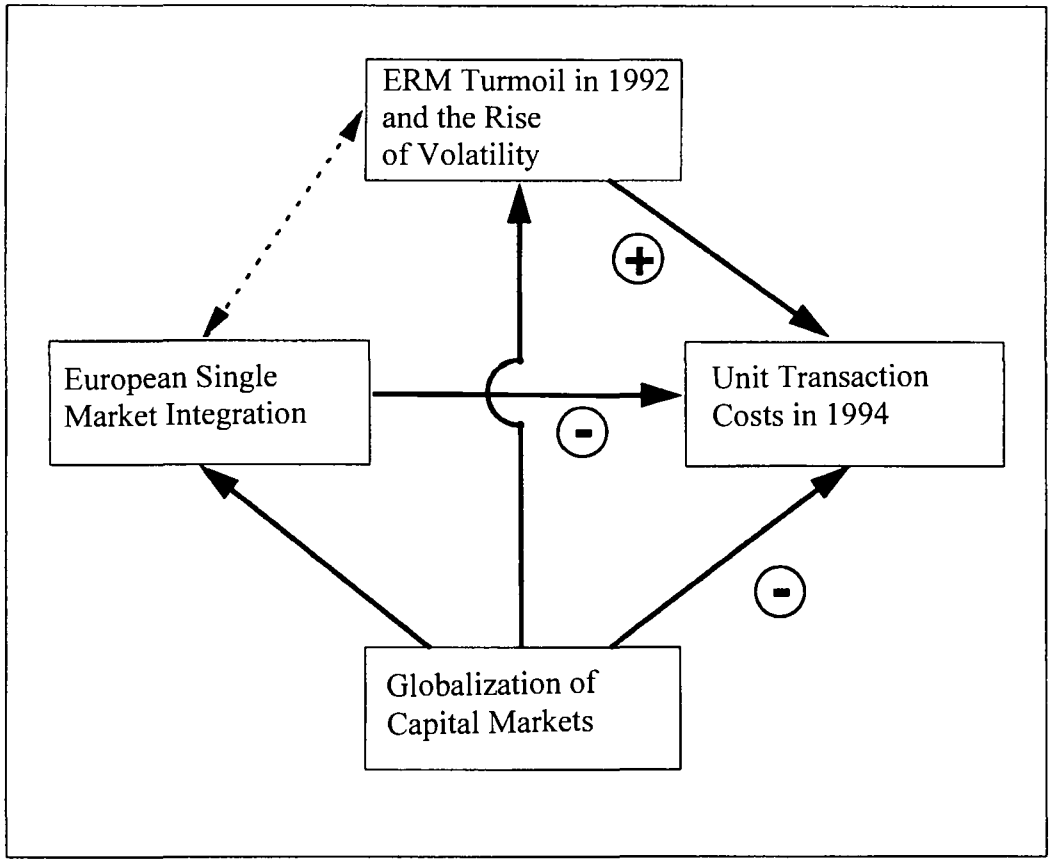
In Chapter 4 our new estimates of the volumes and unit costs of transactions for the entire EU were used to calculate total transaction costs. Table 4.11 presents them as a percentage of EUR-12 GDP in each year since 1986. These surprisingly large percentages – roughly of the order of 1% of GDP – are an indicator of the welfare loss to the EU in each year due to the present system of managing multiple currencies.

To obtain greater insight into the effects of the single market on unit costs of transactions, we propose a more disaggregated analysis which uses the variance between major EU countries and, within these countries, that between individual firms.

5.3.1. The impact of the single market, globalization of capital markets and ERM crisis on foreign exchange transaction costs since the late 1980s

Figure 5.1 portrays the different forces impinging upon foreign exchange transaction costs in the EU. The single market is expected to reduce costs, as is the effect of global capital market integration, while the ERM turmoil and the rise of currency volatility, especially *vis-à-vis* EU non-ERM countries, are expected to increase costs. These three separate forces need to be considered in an answer to the question on the effects of the single market. We consider a counterfactual world (*antimonde*) without the SMP to be able to answer the question: How have unit transaction costs changed compared with the *antimonde*? A disaggregated analysis will be followed.

Figure 5.1. A model of impacts on foreign exchange transaction costs (unit costs) since the late 1980s



By a disaggregated, within-EU country analysis one can largely net out the effects of global capital market integration because the effects should impact all EU countries more or less the same, or if not, then only in combination with some particular country characteristic. In the following, two country characteristics will be analysed in depth: (i) the degree of capital market imperfections *ex ante* in each major country and (ii) the levels and changes in exchange rate volatility before and after September 1992. We hypothesize, first, that the greater the degree of capital market imperfection in 1988, the higher the costs of foreign exchange transactions in 1994, i.e. a persistence effect, and second, that the higher levels of volatility and volatility increases since the fall of 1992 result in higher costs of managing currencies in 1994 and in cost rises since 1992.

5.4. Currency volatility

Currency volatility is here measured as the standard deviation of daily percentage changes of bilateral exchange rates. An inspection of the graphs of the levels and changes of volatility in the last ten years in Appendix E (Tables E.1 to E.12 and Figures E.1 and E.2) indicates that the patterns are largely similar for daily and monthly volatility. Consequently, we focus on daily volatility. In the period since September 1992 substantial changes occurred in the currency system of the EU: the ERM was under attack by capital market speculation, the Italian lira and the British pound left the ERM, the exchange rate bands in the ERM were increased from

±2.25% to ±15% in August 1993. Substantially higher currency volatility was experienced since 1992. The European Commission speaks of an approximate doubling of volatility in the year 1992 for ERM currencies as a whole.[20] A working paper of the Bank of Spain found that the volatility of the exchange rates *vis-à-vis* the DM, measured by the sample variance of the exchange rates, increased nearly fourfold. Two years later volatility was still approximately two times higher than in the period of greatest stability of the ERM system.[21]

In Table 5.1 we summarize the volatility experience of the EU's major currencies. It is noteworthy that the volatility patterns (levels and changes) are very similar for France and Germany, the two largest economies which remained in the ERM. The largest increase in volatility was experienced by the DM/LIT and FF/LIT exchange rates, which increased by a factor of four between the period January 1985–August 1992 and September 1992–August 1995. The Italian lira's volatility has increased from relatively low levels in the ERM to the highest of the currencies analysed in Table 5.1. The volatility of the DM/PTA and FF/PTA exchange rates doubled over the same time periods. Interestingly, the DM/UKL and FF/UKL exchange rates increased only by one fifth the level before 1992. Nevertheless, the volatility levels of the pound sterling are among the highest both before and after 1992. The volatility of the DM/FF exchange rate more than doubles between the two periods. It should be noted that the volatility of the US dollar substantially exceeds the volatility of all the EU currencies analysed in Tables E.1 to E.12 in Appendix E.

The increase in volatility of EU currencies after 1992 changed company strategies. According to country interviews (see the country reports), especially in Germany, firms which did not bother to hedge the low volatility risk of ERM currencies before 1992, now do so. Hedging costs, and, possibly, personnel costs for managing currencies, have risen.

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20 European Commission, 'The impact of exchange rate movements on trade within the single market,' *European Economy*, Reports and Studies, 1995, No. 4, p. 2.

21 J. Ayuso, M.P. Jurado and F. Restoy, 'Is exchange rate risk higher in the ERM after the widening of fluctuation bands?', Bank of Spain, Servicio de Estudios, Documento de Trabajo, No. 9419, p. 5.

Table 5.1. Currency volatility in Europe: levels and changes of the standard deviation of bilateral daily exchange rates, 1985–95

Bilateral exchange rates	Volatility levels						Volatility changes			
	Period 1 Jan1/85-Aug 31/92		Period 2 Sept 1/92-Aug 31/95		Total period Jan 1/85-Aug 31/95		Change		Increase	
		Rank		Rank		Rank		Rank		Rank
DM/LIT	.164	3	.680	1	.388	2	.517	1	315	1
FF/LIT	.144	(3)	.623	(1)	.354	(2)	.478	(1)	334	(1)
DM/PTA	.246	2	.512	3	.343	3	.265	2	108	3
FF/PTA	.230	(2)	.452	(2)	.310	(3)	.221	(2)	96	(3)
DM/FF	.091	4	.217	4	.139	4	.126	3	139	2
		(4)		(4)		(4)		(3)		(2)
DM/UKL	.449	1	.554	2	.482	1	.105	4	23	4
FF/UKL	.441	(1)	.530	(3)	.468	(1)	.088	(4)	20	(4)

Source: Deutsche Bundesbank, own calculations (see tables in Appendix E).

5.5. Capital market imperfections

Table 5.2 describes the degree of capital market imperfections in the year 1988, measured as the possible reduction in the prices of 16 financial products or services through the completion of the single market. This is based upon a study by Price Waterhouse.[22]

The largest possible 'indicative reduction' in financial services prices was found in the case of Spain (21%), followed by Italy (14%), France (12%), Germany (10%) and the UK (7%). These are the five countries for which we have detailed cost data from our standardized survey. These ranks are roughly in line with expectations. It is well known, for example, that capital markets in Spain first became deregulated when that country joined the EU (see the Spanish country report) and that London financial markets have been among the most competitive and specialized in the world. According to the Italian country study, deregulation and greater competition from foreign banks became more important in the second half of the 1980s.

[22] See European Commission, 'The Economics of 1992,' *European Economy*, No. 35, March 1988, p. 90.

Table 5.2. Degrees of capital market imperfection in eight European countries

Possible reduction in the prices of 16 financial products or services through the completion of the single market		
Country	**Theoretical potential price reduction (%)**	**Indicative reduction (centre of range %)**
1. Spain	34	21
2. Italy	29	14
3. France	24	12
4. Belgium	23	11
5. Germany	25	10
6. Luxembourg	17	8
7. UK	13	7
8. Netherlands	9	4
EUR-8	21	10

Source: European Commission, 'The Economics of 1992', *European Economy*, No. 35, March 1988, p. 90. This is based upon a study by Price Waterhouse.

Table 5.3. Financial product prices in eight European countries in the banking sector

Percentage difference in the prices of financial products compared with the average of the four lowest observations			
	Financial service		
	Letters of credit[1] (%)	**Foreign exchange drafts[2] (%)**	**Travellers' cheques[3] (%)**
1. Spain	59	196	30
2. Italy	9	23	22
3. France	-7	56	39
4. Belgium	22	6	35
5. Germany	-10	31	-7
6. Luxembourg	27	33	-7
7. UK	8	16	-7
8. Netherlands	17	-46	33

Source: European Commission, 'The Economics of 1992', *European Economy*, No. 35, March 1988, p. 91.
[1] Cost of a letter of credit of ECU 50,000 for three months.
[2] Cost for a large commercial client of purchasing a commercial draft for ECU 30,000.
[3] Cost for a private consumer purchasing ECU 500 worth of travellers' cheques.

We expect, first, that deregulation is not instantaneous and that imperfection levels and high costs for banking services in the late 1980s continue to have a belated persistent effect on bank charges in 1994. Second, we expect that in the countries where *ex ante* imperfection levels were high, the impact of the single market on bank charges was strongest. The intercountry pattern of cost declines should be largely determined by differences in the degree of *ex ante* capital market imperfection and in the speed by which they were eliminated. We hypothesize that without the single market programme *no* such cost declines would have occurred.

5.6. Empirical analysis of intercountry differences

5.6.1. Bank charges and commissions

In Tables 5.4 to 5.7 we employ these country ranks in the analysis of the costs of foreign exchange transactions, hedging, personnel and equipment costs for managing foreign exchange and in the costs implied by delayed bank transfers. It is expected that the degree of capital market imperfection has a significant effect on unit cost levels in 1994 and on the pattern of change in costs, as reported by firms in response to our standardized survey.

The survey asked firms to indicate whether bank charges and commissions for the exchange of currencies (see Tables V.1 in the country studies), the costs for personnel and equipment for administering foreign currency transactions (Tables V.2 in the country studies), and the costs of hedging currencies (Tables V.3 in the country studies) fall below 0.5% of the volume of their foreign transactions (exports plus imports). In Tables 5.4 to 5.6, the percentages of responding firms with such low unit costs is presented as well as the percentage weighted by the volume of exports of responding firms and, where necessary, by the percentage weighted by industry exports according to official statistics. The reasons for weighting are straightforward: large and more export-oriented firms get a greater weight, and in the case of unrepresentativity of the export shares of responding firms, the average industry export shares according to official statistics are employed. The latter correction is particularly important in the case of Germany, where a few very large and export-oriented firms in the sample reduce the export weighted transaction costs and personnel costs substantially. Thus, in the German case the unweighted percentages are more useful than those weighted by firms' exports.

The level of bank charges and commissions and the country patterns exhibited in Table 5.4 are in line with expectations: Spain has the lowest percentage of responding firms (weighted by exports) with low bank charges (37%) versus 74% in the case of the UK. The other countries have costs which fall between these two extremes. The low costs in Italy (69% of responding firms have low costs) are surprising in recognition that the Italian sample contains many small and medium-sized firms. The high percentage of firms with low costs in France (75%) may also be a reflection of the fact that the French sample does not include small firms. Nevertheless, another interpretation is possible: that in these countries the speed of liberalization and new competition has resulted in a significant decline in costs. This argument finds support in Table 5.4. Overall, one can say that the degree of capital market imperfection in the late 1980s still has an effect on the level of bank charges in 1994. The banking liberalization of the SMP has not yet run its full course.

The degree of *ex ante* imperfections is also a good predictor for the pattern of cost changes since the late 1980s. The unweighted percentages of firms stating that costs have decreased best reflect the expectation that the single market's deregulation of financial markets has the largest impact on costs where competition had been low. In Spain 50% (unweighted) or 53% (weighted) of responding firms state that costs have fallen, while in the UK only 10% (unweighted) or 4% (weighted) of responding firms experience declines. The other countries lie between these extremes, largely in line with the capital market imperfection ranks. On the other hand, the percentage of reporting firms which state that costs have not changed rises with the degree of *ex ante* deregulation. Both patterns, the decrease in costs and the no change in costs as a function of *ex ante* capital market imperfections, are a clear indicator that the single market has had a beneficial effect.

Table 5.4. Bank charges and commissions for the exchange of currencies in 1994 and changes in costs since the late 1980s (results of mail surveys in five countries)

	Percentage of responding firms stating that:									
	costs are lower than 0.5%		costs for intra-EU transactions are lower		costs since the late 1980s have:[2]					
					decreased		not changed		increased	
	unw.	w.[3]	unw.	w.[3]	unw.	w.[3]	unw.	w.[3]	unw.	w.[3]
1. Spain	35	37	52	49	50	53	18	13	14	19
2. Italy	69	69	36	36	39	40	35	33	15	15
3. France	57	75	25	22	23	55	34	18	34	18
4. Germany	60	96 59[4]	33	19 24[4]	17	46 13[4]	42	32 32[4]	40	22 30[4]
5. UK	57	74	33	34	10	4	42	40	27	39

unw. = unweighted, w. = export weights.
[1] See Country Reports, Tables V.1 for particulars.
[2] Because the number of responding firms in each group may differ, the percentages do not add up to 100.
[3] Results weighted by exports of responding firms.
[4] Weighted by industry exports according to official statistics.

However, not all changes have been positive. The weighted percentage of firms stating that there has been an increase in bank charges is initially puzzling. Thirty percent of German firms and 39% of UK firms state that costs have risen. In Germany cost increases have been more the fate of small firms, as the difference in the unweighted (40%) and the exports weighted (22%) percentages indicate. For the UK, however, the increases were borne more by large exporters. The cost increases in Germany and the UK and the strong decline in the other countries could be interpreted that banking competition in the EU due to the single market has not resulted in the best of possible worlds (decreased costs everywhere) but in an equalization of costs somewhere between the highest and the lowest possible levels.

Are banking charges lower for intra-EU than for other foreign exchange transactions? Between 49% (weighted) of firms in Spain and 22% (weighted) of French firms state that this is the case. This effect can be directly attributed to the working of the single market, as opposed to the impact of cost reductions in world-wide capital markets. Nevertheless, the large majority of firms outside Spain indicate that bank charges for EU transactions are no different from charges on non-EU transactions, a result which our company interviews support.

We conclude that the analysis of intercountry variances of bank charges indicates important positive impacts of the single market, particularly in countries were capital markets became substantially deregulated by the SMP. Nevertheless, costs have not been driven down everywhere, they have even risen in the 'more deregulated' banking markets in Germany and the UK. This is a sign of still existing market imperfections in the EU's banking sector.

5.6.2. Costs for personnel and equipment

While currency volatility has no necessary impact on bank charges, an effect on personnel costs is plausible. Moreover, the degree of capital market imperfection has no longer as evident an impact on personnel costs as it does on bank charges.

Before analysing the intercountry variances it is useful to point out that firms' responses to the question of the level of personnel costs as a percentage of foreign transactions involve a number of issues: the degree of foreign exchange risks to manage, the strategy chosen for managing risks, the costs of alternative strategies, and the efficiency of staff. One would expect larger and more exporting firms to have own staff for administering foreign currency transactions. When this staff is highly specialized and efficient, personnel costs should fall as a percentage of foreign trade volumes. Whether or not firms engage in in-house measures to manage currency risks instead of using financial hedging (i.e. employing bank services), can have an impact on personnel costs.

If hedging costs are high because of capital market imperfections and because hedging instruments are not well developed for a given currency, then increased in-house measures and real hedging may take place, requiring more personnel. The kind of in-house measure taken also has an effect: increased invoicing in local currency is expected to decrease staff costs, whereas increased use of pricing policy may require more staff.

Table 5.5. Costs for personnel and equipment for administering foreign currency transactions in 1994 and changes in costs since the late 1980s (results of mail surveys in five countries)[1]

	Percentage of responding firms stating that:									
	costs are lower than 0.5%		they have specific staff		costs since the late 1980s have:[2]					
					decreased		not changed		increased	
	unw.	w.[3]	unw.	w.[3]	unw.	w.[3]	unw.	w.[3]	unw.	w.[3]
1. Spain	48	54	28	33	11	20 14[4]	32	33	22	27
2. Italy	76	71	84	84	20	22	36	32	37	38
3. France	16	56	22	72	3	11	9	23	6	33
4. Germany	89	98 63[4]	11	79 14[4]	9	15 5[4]	53	38 33[4]	39	46 24[4]
5. UK	65	81 63[4]	57	70 59[4]	3	1	56	83 56[4]	17	6 16[4]

unw. = unweighted, w. = export weights.
[1] See Country Reports, Tables V.2 for particulars.
[2] Percentages do not necessarily add up to 100. See Table 5.4.
[3] Weighted by exports of responding firms.
[4] Weighted by exports according to official statistics.

Finally, careful management of higher volatility (risky) currencies may require more staff than managing transactions with stable currencies.

Table 5.5 describes the level and changes in personnel costs of surveyed firms as well as indicating the existence of specialized staff for administering foreign currency transactions. The ranking of countries by the degree of *ex ante* capital market imperfection is employed to investigate if higher hedging costs and the lack of specialized hedging instruments in uncompetitive markets may drive firms to alternative, more personnel-intensive strategies for managing currency risks and if there is persistence since the late 1980s.

If that is the case, one would expect a lower percentage of responding firms to have low personnel costs as a percentage of their foreign transactions. The weighted percentage of firms

reporting low costs in Spain is indeed the lowest (54%), while the UK shows 63%, not a large difference. While France (56%) and Germany (63%) are in these bounds, the percentage of Italian firms which state low costs, 71%, is the highest of the group of major countries.

In other words, the persistence effect of late 1980s capital market imperfections on personnel costs in 1994 is muted to non-existent. This was to be expected, given the indirect and contingent causation described above, but, above all, because firms' strategies are expected to change quickly in response to changing currency risks. The expected impact of the higher level of currency volatility on personnel costs in the case of Italy and the UK is also not found.

In line with expectations that high currency volatility and risks need to be managed by specialized staff, we find that 84% of the reporting Italian firms state they have such staff, compared to 14% in Germany, 72% in France, 33% in Spain. But in the country with the highest levels of currency volatility in the last ten years, the UK, only 59% of responding firms have own staff. For Italy the unweighted and weighted responses are identical, indicating that both small and large exporters react the same way to currency risks. In contrast, in France and Germany, it is the larger exporters which have such staff. Notwithstanding high staffing, in Italy the high percentage of firms with low staff costs (as a percentage of foreign transactions) is an indicator of very efficient staff.

While more firms stated that personnel costs have increased rather than decreased since the late 1980s, it is still of interest to point out that the pattern of decreases (14%, export weighted, of responding firms in Spain, 22% in Italy, 11% in France, 5% in Germany and 1% in the UK) seems influenced by the degree of *ex ante* capital market imperfection. Given declining hedging costs in deregulated markets, firms can switch strategies away from personnel-intensive forms.

The percentage of responding firms which state that their personnel costs have increased since the late 1980s, however, is clearly in line with the pattern of historical volatility increases as shown in Table 5.1. The positive association is as follows:

Table 5.6. Volatility increase and rising personnel costs

Country	Percentage increase volatility vs. the DM (rank)	Percentage of responding firms experiencing cost increase (weighted by exports)
Italy	1	38
France	2	33
Spain	3	27
UK	4	16

We conclude this section with the finding that the intercountry variation of personnel costs provides no important evidence of the effect of the single market nor of important persistence effects. The effects of different company strategies and staff efficiency seem more important explanations of personnel cost levels. Changes in currency volatility have a dominant effect on cost increases, while the more modest cost declines may be associated with the progress of capital market deregulation.

5.6.3. Hedging costs

Hedging costs as a percentage of foreign transactions are influenced by hedging charges per transaction, the availability of suitable hedging instruments (both of which are determined by capital market competition and specialization) and the decision to hedge or not. The latter is not only influenced by the level and change of currency volatility faced by firms but also by the degree of currency misalignment and the associated probability of a fall or rise of the misaligned exchange rate.

Thus, it is again useful to rank countries, as before, by the degree of capital market imperfection *ex ante*. We expect that the levels of unit costs of hedging in the year 1994 may still be influenced by the 1988 ranks, and that cost declines due to the operation of the single market should be correlated with the degree of imperfection obtaining in the late 1980s. Because of the substantial changes in currency volatility, or currency risks, since 1992, one would expect a rise in costs of hedging, since firms may now wish to hedge more within-EU and within-ERM transactions than before.

However, we now need to recognize that the longer run uncertainty which is attached to misaligned currencies, regardless of the degree of their short-run volatility, plays a role in firms' hedging decisions. Because it is usually well-known whether currencies are over- or undervalued by capital markets in comparison to their long-run equilibrium values, the direction of change of future currency changes is largely known. The uncertainty concerns the timing of changes which involves the probability of an exchange rate jump and the size of that jump. The degree of currency uncertainty may not move in line with the degree of currency risk or volatility.

Also, the degree of uncertainty may far exceed the risk associated with volatility, as the previously cited working paper of the Bank of Spain (Ayuso et al., 1994) argues. For the case of Spain, the authors state (p. 14) that 'the (total) exchange rate risk which characterized the period between June 1989 and August 1992 is approximately four times greater than what would be deduced from the simple estimation of the within the regime volatility'. The crucial difference between volatility and total risk is that the latter includes the perceived sustainability of the exchange rate regime. The sustainability of the DM/PTA regime within the ERM before September 1992 eroded with the rise of interest rate differentials between these two countries. Interestingly, Ayuso, Jurado and Restoy find that with the widening of the exchange rate bands the exchange rate regimes of the currencies remaining within the ERM became more credible; therefore, their 'corrected conditional volatility' (the authors' term for total risk) declined since widening of the bands. The (total) 'exchange rate risk is now lower than during the period of exchange rate stability' (p. 18). This, however, is not true for the Italian lira and the UK pound, which left the system: 'unlike what occurred for most currencies which widened their fluctuation bands, the currencies which withdrew from the ERM have been subject to a substantial increase in their associated exchange rate risk' (p. 17).

In Table 5.7 the weighted percentage of responding firms with low cost hedging is affected by the degree of imperfections in 1988: in Spain this percentage is lowest (53%) and in the UK the percentage is highest (79%), with France (68%) and Germany (78%) in between. Thus, as in the case of bank charges discussed above, the degree of imperfection in 1988 and the associated higher costs show a persistence until 1994. Only the Italian firms' responses (77%) do not fit the pattern; their costs are 'too low'. A possible explanation for low Italian costs could be that in 1994 Italian firms speculated on further falls of the lira, thus *not hedging*

would allow them to take advantage of future exchange rate changes. Less hedging of foreign transactions reduce hedging costs. Thus, currency uncertainty was used to advantage. There is some support for this story from the interviews in the Italian country report.

The pattern of declines in hedging costs is also roughly in line with the pattern of *ex ante* imperfections. In those countries with a high degree of capital market imperfections and associated higher hedging costs, the declines have been more important than in the case of Germany or the UK. Thus, this pattern indicates positive effects of the single market. In Italy the weighted percentage of responding firms which faced cost declines since the late 1980s was 38%, in France 41% versus 7% in Germany and 4% in the UK. The Spanish percentage, 19%, however, seems too low to fit the pattern. The question arises if the capital market in Spain has not yet provided low cost and suitable hedging instruments to firms.

The percentage of firms stating that they experience cost increases should inform us of the possible impacts of increased currency risk and uncertainty since September 1992. Interestingly, neither Italian firms nor UK firms show a different response from the others, although their currency uncertainty has increased substantially. This may be understandable in the case of Italy, for the reason mentioned above, but not for the UK. For the UK the continued availability of low-cost specialized hedging instruments from the efficient and competitive London capital market plays the dominant role. The unusual case to discuss is Germany, where nearly 30% (weighted) of responding firms state that hedging costs have risen. From company interviews, discussed in the German country study, we obtain the information that firms now hedge transactions with ERM currencies, which they did not hedge before 1992.

We summarize the hedging cost analysis with the finding that the SMP of establishing deregulated capital markets in the EU has had an important effect in reducing hedging costs in countries previously hindered by imperfect capital markets. Just as in the case of bank charges, this process is not complete, as can be seen by the persistence of the higher costs in Spain and France, compared with Germany and the UK. The company response to the rise of currency risk and uncertainty differs among countries. In Italy it is suggested that firms respond to higher uncertainty by not hedging, while in Germany firms' responses may be to increase hedging to manage increased volatility.

Table 5.7. Costs of hedging in 1994 and cost changes since the late 1980s (results of mail surveys in five countries)[1]

	Percentage of responding firms stating that:							
	costs are lower than 0.5%		costs since the late 1980s have:[2]					
			decreased		not changed		increased	
	unw.	w.[3]	unw.	w.[3]	unw.	w.[3]	unw.	w.[3]
1. Spain	51	53	20	19	37	41	13	17
2. Italy	79	77	36	38	46	46	15	12
3. France	50	68	13	41	30	21	13	12
4. Germany	83	69 78[4]	9	38 7[4]	55	37 48[4]	36	25 29[4]
5. UK	80	92 79[4]	3	1 4[4]	71	89 68[4]	16	7 14[4]

unw. = unweighted, w. = weighted.
[1] See Country Reports, Tables V.3 for details.
[2] Percentages may not add up to 100; see Table 5.4.
[3] Weighted by exports of responding firms.
[4] Weighted by exports according to official statistics.

5.6.4. Delays in bank transfers

Tables 5.8a and 5.8b display the company responses to the survey query of the length of time required for cross-border bank transfers within the EU and for non-EU transactions. Here geography plays an important role, especially in the case of the UK, where transfers take an average of 3.9 days for within-EU transactions and 4.2 days for non-EU transactions. More interesting is the information whether the delays have declined or not. Here we can compare the transfers within the EU to those with the non-EU as follows:

Table 5.8a. Bank transfer delays for EU and non-EU transactions

	Percentage of firms stating that delays have declined:		
	in the EU	for non-EU transactions	Differences
	(export weighted responses)		
Country	**(1)**	**(2)**	**(3=1-2)**
Spain	63	43	20
Italy	40	32	8
France	56	38	18
Germany	31	26	5
UK	18	15	3

The results show that declines in the delay of bank transfers have been greater for EU transactions versus non-EU transactions especially in the countries where capital market imperfection had been high in the late 1980s. Because the within-EU delays by Italian banks are apparently substantially less lengthy than would be predicted by the degree of *ex ante* imperfections, we need to consider the point, here and for the previous analysis, that the progress of competition may have been unusually fast in that country's industry. The persistence effect is significantly lower than expected. Although the pattern of decline within

the EU is also strongly affected by the degree of *ex ante* imperfections, the comparison with transactions to the rest of the world, where non-EU banks play an important role, confirms the story: competition and improvement of service by banks in formerly non-competitive environments within the EU have had a stronger effect than the improvement of service to the rest of the world. This effect, which reduces the interest costs of transactions within the EU, is directly attributable to the SMP.

Table 5.8b. Delays in bank transfers for EU and non-EU currencies compared to transfers in local currency in 1994 and changes since the late 1980s (results of mail surveys in five countries)[1]

	Number of extra days for transfers:				Percentage of responding firms stating that:							
					EU delays have:				non-EU delays have:			
	within the EU		to non-EU regions		declined		not changed		declined		not changed	
	unw.	w.	unw.	w.	unw.	w.	unw.	w.	unw.	w.	unw.	w.
1. Spain	2.0	2.0	3.0	3.0	53	63 43[2]	20	25	41	49 43[2]	23	30 25[2]
2. Italy	2.3	2.3	3.0	3.3	42	40	48	49	29	32	54	52
3. France	1.9	1.1	2.0	1.2	25	56	46	32	22	38	41	48
4. Germany	3.0	2.0	5.0	2.0 3.0[2]	33	59 31[2]	57	40 52[2]	32	62 26[2]	57	36 50[2]
5. UK	3.6	3.9	4.2	4.2	2	24 18[2]	56	62 58[2]	15	19 15[2]	59	67 60[2]

unw. = unweighted, w. = weighted by exports of responding firms.
[1] See Country Reports, Tables V.4 for details.
[2] Weighted by exports according to official statistics.

5.7. Conclusions

What has been the effect of the SMP on unit costs, net of the effects of world-wide capital market trends and changes of currency volatility in the EU since 1992? Chapter 5 addresses this question and attempts an answer. It argues that a disaggregated analysis helps to identify the impact of the single market as opposed to the impacts of other factors. Figure 5.1 models the impact of different forces on unit transaction costs. Because there is a common impact of world capital market influences on all EU countries, the analysis of unit transaction cost *differences* between countries factors out global influences. By disaggregating the analysis into different types of costs, it is easier to separate the impact of the single market from changes in currency volatility. It is expected that changes in volatility do not affect bank charges for exchanging or hedging currencies. Instead, volatility should affect personnel costs and the decision to hedge or not.

Table 5.1 presents a summary of currency volatility levels and trends for the five major EU currencies since January 1985. Currency volatility is here defined as the standard deviation of the daily percentage change of the bilateral exchange rate over the periods analysed. Appendix E contains tables and figures of the daily and monthly volatility experiences of six EU currencies since 1985. The rise in volatility of the Italian lira has been the most substantial among the major currencies.

Tables 5.2 and 5.3 present information on the degree of capital market imperfection existing in eight European countries in 1988. The possible reduction in prices of 16 financial products or services through the completion of the single market defines capital market imperfection. This change was greatest for Spain, which is followed by Italy, France, Germany and the UK, the countries for which we have detailed survey results on transaction costs. These ranks were used in the subsequent analysis of unit cost data obtained from the country mail surveys.

The hypothesis to be tested in this analysis is, first, that the SMP of deregulating capital markets is not instantaneous and that a high level of capital market imperfection and high costs of banking services in the late 1980s continue to have a belated, persistent effect on bank charges in 1994. Second, it is expected that where *ex ante* imperfection levels were high, the impact of the single market on bank charges was strongest. Thus, intercountry patterns of cost declines should be largely determined by differences in the degree of previous capital market imperfections and by the speed in which they were eliminated. It is assumed that in the *antimonde* without the SMP's First and Second Directives for Coordinating Banking Law and the Directive for the Complete Liberalization of Capital Movements no such cost declines would have occurred. The important Second Banking Directive of 1989 set out the principle of the right of banks to trade financial services and to establish branches throughout the EU, on the basis of a single authorization or 'licence' from their home country supervisor. The Directive liberalizing capital movements of 1988 was of outstanding importance because it required the dismantling of all barriers to capital movements in the EU.

The level of bank charges in 1994 and the patterns of cost changes are in line with expectations raised by the previous hypothesis. Spain has the lowest percentage of responding firms with the lowest category of bank charges (37% of responding firms, weighted by exports) versus 74% of responding firms in the case of the UK. The other countries have responses which fall between these two. The reported cost declines since the late 1980s in this group of five countries are also correlated with country ranks of the degree of capital market imperfection in the late 1980s. Interestingly, a rise of bank charges is reported in both Germany and the UK by 32% and 30% of reporting firms, respectively.

As is to be expected, there is a clearer association of personnel costs with volatility than with the degree of capital market imperfection. Unit costs for personnel and equipment increased since the late 1980s and these increases are clearly correlated with the ranking of currencies according to the percentage increase in volatility after 1992.

The analysis of hedging costs is complicated by the fact that both single market effects and volatility changes have an influence on those unit costs. The pattern of cost decreases found among the five countries is clearly associated with the imperfection ranks. However, cost increases have been identified in the case of Germany where 36% of responding firms state that their costs have risen. Personal interviews of German firms clarify this point. Whereas many German firms did not hedge transactions within the stable ERM currency group before 1992, after 1992 they do.

Appendix D also reports the results of the regression of the different types of unit costs on the volume of foreign trade and the direction of trade, as well as other variables. (See Tables D.1, D.2 and D.3.) The most noteworthy result concerns the size of the estimated elasticity of bank charges to the volume of the firm's foreign trade. In the two countries where capital market liberalization and deregulation are strongest (Germany and the UK), this elasticity has a

substantially higher absolute value than that found in the three other countries analysed. The estimated elasticity of -.2 indicates that with a 10% increase in the volume of foreign transactions a firm's unit bank charges for exchanging currencies fall by 2%. In the more competitive markets in Germany and the UK large firms have greater cost advantages than in Italy or France. The larger elasticity in the previous countries is corroborated by the former finding that a significant number of German and UK firms (and among them especially the smaller firms) stated their costs had increased. This could well be the case in a banking environment where large firms can demand low charges and banks raise charges on small and medium-sized firms in order to cover costs or maintain profit margins.

6. Survey of the literature of foreign exchange volatility and risk and their effects on corporate strategies, trade and investment

6.1. Problems of risk measurement

6.1.1. Introduction

Empirical studies are faced with the problem of how best to define the exchange rate risk in statistical terms. Three main questions arise in this connection:

(1) Is the nominal exchange rate or the real one of importance?
(2) Is the uncertainty created by the short-term volatility of exchange rates or by their longer-term fluctuations?
(3) What constitutes an adequate measure of risk or uncertainty?

Regarding (1): Do the fluctuations in the nominal exchange rates or in the real ones represent a factor of uncertainty for companies and lead to corresponding reactions? This should essentially depend on the time horizon of the export/import transaction, i.e. the time elapsing between the planning or agreement of such a transaction and its actual execution. If the time between placing an order and delivery of the goods is relatively short, and if the goods to be exported or imported have already been manufactured, then the costs and prices are, as a rule, known. The only remaining component of uncertainty in the profit calculation is then the exchange rate. In this case, the short-term and nominal variability of the exchange rates will be of importance. If the time horizon relevant to the transaction has a longer-term character, then constant costs and prices can no longer be guaranteed. In the case of longer-term transactions, therefore, the real exchange rate will probably determine the level of the exchange rate risk.

Regarding (2): From the considerations in (1), one might conclude that the short-term variability in exchange rates is relevant for short-term transactions and the long-term movements in exchange rates for longer-term transactions. However, the long-term exchange rate risk is also of interest to shorter-term foreign trade transactions, because what ultimately counts here is the profitability of a production plant over its entire lifetime. Surveys of companies (Herrmann, 1988; IFO Institute, 1996) confirm the supposition that it is particularly the uncertainty about longer-term movements in exchange rates that represent a risk for the companies and lead them to adopt defensive strategies. The longer-term exchange rate risk derives especially from the uncertainty about the duration of upward and downward currency movements that continue for a longer period or, in a system of fixed exchange rates such as the ERM, the uncertainty about the exact date of rate corrections. Cushman (1983), de Grauwe (1988), de Grauwe and Bellevoid (1986), Steinherr (1985), Perée and Steinherr (1989), Arize and Gosh (1994), and Sapir et al. (1994) attempted to look at the effects of the longer-term uncertainty and misalignments of exchange rates. Savvides (1992) differentiated between anticipated and non-anticipated developments in exchange rates. These authors were able to determine significant effects of uncertainty in exchange rates – of both negative and positive types – more frequently than did those authors who examined the effect of short-term fluctuations in exchange rates (Justice, 1983; Gotur, 1985; Thursby and Thursby, 1985; Gosling, 1986; Bailey, Tavlas and Ulan, 1986 and 1987).

Regarding (3): Empirical investigations of the effects of exchange rate risk face the problem of how to define the risk, both short and long term, in statistical terms. There is no agreement on this point in the relevant scientific discussions. The same applies to the question of whether the standard deviation constitutes a suitable measure of risk, as movements in exchange rates do not satisfy the conditions of a normal distribution. The problem of how to describe long-term risk in statistical terms has not yet been satisfactorily resolved either. The empirical literature offers a number of proposals on this point, and these will be briefly examined in the following overview of empirical examinations.

6.1.2. Recent trends in financial volatility and risk analysis[23]

Nevertheless, there is an increasing focus in the recent financial literature of volatility and risk on 'conditional volatility' which attempts to extract a useful measure of risk from short-term volatility by modelling the typical volatility clustering, usually seen in financial data and usually ignored by the traditional literature of foreign exchange volatility (see Kroner, 1996; Deutsche Bundesbank, 1996; Bollerslev, Chou and Kroner, 1992). Here time-varying second order moments are described by the autoregressive conditional heteroscedasticity (ARCH) model introduced by Engle (1982). Using the ARCH model, more efficient volatility forecasts of financial variables can be made, thus providing superior estimates of the variance of unexpected exchange rate changes, or risk, in the high-frequency domain (day-to-day foreign exchange changes, in our case). One indicator of the fast diffusion of this kind of volatility analysis is the fact the most recent update of the E-Views statistics programme, which contains an ARCH routine, has been sold out in Germany.

Unfortunately, it is still unclear if the empirical application of ARCH models in foreign trade analysis provides superior results compared with the use of traditional volatility measures. An example of the exemplary study by Kroner and Lastrapes (1993) proves the point. The authors apply a generalized autoregressive conditional heteroscedasticity (GARCH) model to export flows and prices of five industrialized countries in the post-Bretton Woods era. They find that GARCH conditional variance of the nominal exchange rate has a statistically significant impact on the reduced form equations for all countries analysed. For most of the countries the magnitude of the effects is stronger for export prices than quantities. Nevertheless, because the coefficient estimates and the magnitudes of the effects differ widely across the countries of the sample (the US, the UK, France, West Germany, Japan), the authors state that 'it is possible that fundamentally different (structural trade) models will be required to explain the divergences of the results across countries ' (p. 313). Kroner and Lastrapes conclude:

> As with the previous empirical literature on trade and volatility, it is difficult to draw policy or welfare conclusions from our results. First, the magnitude of the impact of exchange rate volatility seems to be absorbed mostly in the price of exports. Second, the direction of the impact on trade differs across countries. Most importantly, only to the extent that there is a dead-weight loss from under- (or over-) utilization of comparative advantage will the effect of exchange rate volatility on international specialization impose a welfare cost... Our framework is not rich enough to investigate this issue (p. 313).

For contrast, the results of another recent example of sophisticated modelling of exchange rate volatility on trade flows should be compared. Chowdhury (1993) examines the impact of real

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[23] See also the Measurement of Volatility and Risk in Recent Financial Literature in Appendix F.

exchange rate volatility on the trade of the G7 countries (the same countries analysed by Kroner and Lastrapes plus Italy and Canada) in the post-Bretton Woods era in the context of a multivariate error-correction model. The author employs a traditional time varying measure of exchange rate volatility, the moving sample standard deviation of the growth rate of the real exchange rate, which is used, for example, by Kenen and Rodrik (1986). Also, a standard long-run (reduced form) relationship between real exports, the level of real activity, competitiveness and exchange rate volatility is specified. The novelty of the approach is the realization that it considers that real exports and its determinants are potentially non-stationary integrated variables.

Chowdhury finds that, irrespective of the country considered, the real exports variable is cointegrated with the measure of foreign economic activity, a measure of competitiveness, and exchange rate volatility. This suggests that there is one linear long-run equilibrium relationship among the variables and that any departure from this relationship may be due to temporary disequilibrating forces. This is a precondition for applying an error correction model (ECM), whereby the ECM can show how the system converges to the long-run equilibrium. In the ECM account is taken of the fact that a lagged relationship may exist between the volume of exports and its various determinants, which standard trade models ignore. Chowdhury's empirical results are of particular interest because they find that the estimated volatility coefficient is negative and statistically significant for each of the seven countries. The coefficients on the volatility terms are relatively high in all countries except Italy and the UK. The results can be generalized to argue that risk-averse market participants react to exchange rate volatility by favouring domestic - foreign trade (p. 705), which confirms earlier findings by Kenen and Rodrik (1986), while contradicting Gotur (1985).

Thus, Chowdhury finds,

> once the non-stationary behaviour of the variables are taken into account, the error-correction results indicate that exchange rate volatility has a significant negative impact on the volume of exports in each of the G7 countries. If market participants are risk averse, these results imply that exchange rate uncertainty causes them to reduce their activities, change prices, or shift sources of demand and supply in order to minimize their exposure to the effects of exchange rate volatility. This, in turn, can change the distribution of output across many sectors in these countries (p. 705).

6.2. Volatility and risk and companies' risk-averting strategies: theoretical background

Fluctuations in exchange rates increase the risk in company decisions. Risk exists in all areas of economic activity. Generally, it arises out of uncertainty about future developments. For companies with foreign connections, risks arise merely through being linked with different national currency areas. Currency risks are bound up with not knowing how exchange rates will develop in the future. The uncertainty derives above all from not being able reliably to forecast exchange rates on the basis of existing models.

All exchange rate systems entail currency risks, albeit in different forms. In the fixed exchange rate system companies have to reckon from time to time with parity changes, when price trends and real economic factors in individual countries diverge over a period of time. As a rule, such discretionary exchange rate corrections reflect the exigencies of so-called fundamentals and are, therefore, at least in terms of their direction – revaluation or devaluation of the individual currency – to some extent foreseeable. But there still remains uncertainty

about the timing and scale of the exchange rate adjustments. Experience proves that governments are for the most part very reluctant either to revalue or devalue their currencies, as the former hits exports while the latter entails the risk of import-driven inflation and loss of political prestige. This has the consequence that governments are finally only compelled to act by protracted waves of currency speculation.

In the flexible exchange rate system the risk aspect takes on a further dimension. In general, risk grows to the extent that a factor important to company strategy deviates from its anticipated value. Whereas in the fixed exchange rate system the limits of exchange rate fluctuation are fixed by the points of intervention, in the flexible exchange rate system this is not the case. In addition, experience shows that exchange rates determinated in a free market do not necessarily follow fundamentals – at least in the medium term. Much rather, we frequently find exchange rates 'overshooting' the mark, first because of the globalization of the capital markets and then because prices react at different speeds on the commodities and capital markets (Dornbusch, 1976).

A hypothesis widely accepted in the literature is that increased risk, of the kind we see reflected in uncertainty about future exchange rate developments, reduces expected economic utility. In these models (e.g. Hooper and Kohlhagen, 1978) risk-averse firms with international trade links are unable to fully hedge their exposure to exchange rate risk. Risk shifts back the export supply curves, decreasing the equilibrium quantity of trade and increasing the equilibrium price of traded goods.

However, theoretically, other reactions by companies to increased risk can also be deduced. Drawing on developments in production and consumption theory (Newberry and Stiglitz, 1981), it can be demonstrated that economic activities can equally well expand with increased risk (de Grauwe, 1988). In the context of increased risk it is important to distinguish between total utility and marginal utility. While it is true that increased risk reduces total utility of activities, marginal utility can rise or fall depending on the degree of relative risk aversion. The greater the degree of risk aversion, the more likely it is that economic activities increase.

De Grauwe (1988) described the economic intuition underlying these results as follows:

> Very risk-averse individuals worry about the worst possible income. As a result, when risk increases they will export more to avoid the possibility of a drastic decline in their revenues. Less risk-averse individuals are less concerned with extreme outcomes. They view the return on export activity now as less attractive given the increase in risk and decide to export less (p. 67).

This result can also be explained in that an increase in risk has a substitution effect and an income effect. The substitution effect is borne out when, due to a rise in risk, the attractiveness of high-risk activities falls and they therefore become restricted. The income effect works in the opposite direction. When the expected total utility of the income, e.g. from export business, falls, this can be compensated or even overcompensated by more exports.

Giovannini (1988) shows that the expected value of profits of a risk-neutral firm may increase or decrease depending upon the demand and cost functions of an exporting firm as well as on its invoicing practices. If, for example, an exporting company invoices in local currency, and if the cost and demand functions are linear, then a rise in exchange rate variability will increase the expected profits and thus stimulate export supply.

Froot and Klemperer (1989) show that under an oligopolistic market structure the market share policy of companies is highly sensitive to exchange rate uncertainty. Quantities and prices of traded goods can be affected positively or negatively depending on the exchange rate expectations, that is if an appreciation or depreciation of a currency is expected to be permanent or temporary.

In hysteretic models it can be shown that even when agents are risk-neutral, exchange rate uncertainty can affect trade behaviour. Uncertainty can alter the option value of not participating in export activities (Baldwin and Krugman, 1989).

A further explanation for reactions to increased risk from exchange rate fluctuations is given in the 'separability' approach (Broll and Wahl, 1995). In particular, this approach can explain why, in empirical studies, certain exports showed no reaction at all to exchange rate variability. The so-called 'separability theory' states that 'exchange rate hedging by means of foreign exchange derivatives can under certain conditions lead to neither exchange rate fluctuations nor risk behaviour on the part of the export company having an effect on its optimum production decision' (p. 594). If forward exchange contracts and currency options are available for all currencies, then production for export is unaffected by exchange rate uncertainty. The risk effect on the export quantity, which arises as a result of uncertainty over the future development of exchange rates, is nullified by direct hedging.

However, forward exchange contracts and currency options are not available for all currencies. The job of the company is then one of finding substitute instruments for exchange rate hedging (indirect hedging). Here suitable financial assets are those whose market prices are highly correlated with spot exchange rates. Yet this is not always the case. Under the conditions of indirect hedging, risk management and export production, as Broll and Wahl conclude, can no longer be separated. Rather, the export quantity is now determined by the degree of risk aversion and by exchange rate expectations.

Another strategy that might also theoretically be deduced is to relocate activities to markets with lower exchange rate risks (Coes, 1979). Coes argues that price uncertainty in one market will not just reduce total output or exports but also draw resources away from that market and move them to another market with relatively lower risk. Markets with lower risk may not only be the home market but also other foreign markets.

The relationship between exchange rate changes and traded goods prices and the role of market structure is investigated in the 'pass-through' approach of exchange rate theory (Krugman, 1986 and 1989). There is empirical evidence that changes of the US dollar exchange rate were only partially transmitted to import prices of the USA, i.e. import prices did not fall in the appreciation period and did not rise in the depreciation period of the US dollar.

The impact of exchange rate risk on direct investment behaviour of a monopolistic multinational firm is investigated by Itagaki (1981). Concerning exchange rate risk, he stresses that it is the firm's own perception of risk, not the actual fact, which affects economic activity. Is direct investment encouraged or discouraged by exchange rate risk? Itagaki investigates the cases of positive and negative foreign currency exposure of the firm, the cases of increasing and decreasing marginal processing costs, and for the case that it is possible to hedge exchange rate by forward contracts. In his model Itagaki can show that under the conditions of

positive foreign currency exposure and increasing marginal processing costs, foreign production and the exports of both intermediate goods to the foreign subsidiary and of final goods will be reduced. If the foreign currency exposure is negative, the impacts of exchange rate risk are completely reversed, i.e. foreign production and exports rise. The same reaction of the firm can be shown in the case that a positive foreign currency exposure will be accompanied by decreasing marginal processing costs.

Optimal cover by forward exchanges can eliminate exchange rate risk. The impacts of risk shown above will not appear. Hedging by forward exchanges may induce even greater amounts of world trade and production than in a completely fixed exchange rate regime without forward markets.

The main conclusion of the theoretical approach to exchange rate risk is that there is a major theoretical ambiguity regarding the impact of exchange rate uncertainty on economic decisions and, in particular, on those related to trade and foreign investment.

6.3. Evaluation of existing empirical literature

6.3.1. Impact on trade

Global trade of individual countries and of groups of countries

Surveys of the effects of exchange rate fluctuations on international trade flows started in the 1970s. In these early studies no negative influences on the foreign trade of industrial countries could be demonstrated, with the exception of trade between the UK and the USA (Hooper and Kohlhagen, 1978). In the case of the foreign trade of developing countries a certain reactibility to exchange rate uncertainty was shown (Coes, 1979; Diaz-Alejandro, 1976). A GATT study (Blackhurst and Tumlir, 1980) concluded that the system of flexible exchange rates had little influence on international trade flows. The authors doubted whether exchange rate movements had any independent effect on other macroeconomic variables, as exchange rate movements were of necessity endogenous in nature. The International Monetary Fund (Goldsmith and Khan, 1985) also found no clear link between exchange rate fluctuations and the slowing down of world trade.

Justice (1983) investigated export volumes and export prices of the UK. In view of the difficulty of measuring exchange rate risk statistically, he tested no less than ten uncertainty measures. He used the Gini Index and other measures of mean deviation. Justice does not necessarily see higher risk in exchange rate fluctuations. Therefore he distinguishes between measures of variability and measures of risk. The measure of risk is either the average deviation of the realized exchange rate from that predicted by a trend regression or the difference between the spot price and forward price one or two periods before. The measures of variability are calculated in various ways as average deviations of changes in various periods.

Justice was not able to demonstrate a significant influence of exchange rate variability and exchange rate risk on the export volume of the UK. The results were different for export prices. These were shown to be influenced by the volatility of real exchange rates. A positive relationship pointed to an indirect effect of exchange rate fluctuations on the export of goods. However, negative relationships were also formed. According to Justice these points to the exporter carrying the exchange rate risk.

The authors who first demonstrated negative effects of exchange rate uncertainty on international flows of goods were Akhtar and Hilton (1984). They examined exports and imports as well as foreign trade prices of the USA and the Federal Republic of Germany. As an uncertainty measure they used the standard deviation from the daily nominal effective exchange rates. For the observation period between 1974 and 1981, Akhtar and Hilton established significant negative influences for German exports and imports and for American exports. American imports, however, rose in reaction to exchange rate variability (real hedging?). It is noteworthy that the coefficients for Germany are higher than those for the USA. The authors put this greater sensitivity to exchange rate fluctuations down to the higher level of openness of the German economy, in which a larger part of production is subject to external influences.

Gotur (1985) seriously called into question the hypothesis of a generally trade-dampening effect of flexible exchange rates. She subjected the findings of Akhtar and Hilton to a test of general validity, by extending the observation period and applying complicated lag structures of the uncertainty and price variables. In addition, other countries like France, the UK and Japan, were included. Only in the case of German exports was there still a significant negative influence, whereas the coefficient for German imports was no longer significant. In the US exports and imports there was a switch in signs. In the case of the newly introduced countries of France and the UK, no significant influence could be detected either for exports or imports. The same was true of Japan's exports.

Kenen and Rodrik (1986) also produced mixed results. They investigated the influence of exchange rate risk on the total exports and imports of 11 industrial countries in the period from 1975 to mid-1982. On the basis of monthly real exchange rates during a 12- or 24-month period, three risk measures were tested, namely, the standard deviation of the monthly percentage changes, the deviations from trend and the deviations from an estimated autoregressive function.

On the export side, negative effects were detected in only three cases, i.e. for Italy, Japan and Canada. In the case of exports of Belgium, France, Germany, the Netherlands and Sweden, no statistically significant values for the risk variable were established. US and British exports even showed positive reactions.

On the import side, significant negative influences were shown for four countries, i.e. for Germany, the UK, the USA and Canada. In the case of French and Belgian imports, the extension of the observation period rendered, the coefficients of the risk variable were insignificant, or changed the signs.

In their 1986 study, Bailey et al. (1986, 1987) investigated the relationship between exchange rate fluctuations and the total export volume of seven industrial countries (Canada, France, Federal Republic of Germany, Italy, UK, USA and Japan). As an uncertainty measure they used the percentage changes of the effective nominal exchange rates from quarter to quarter. The influence of exchange rate variability on exports was estimated on the one hand using the variability measure of the current period, and on the other using an eight-period distributed lag. In none of the seven countries did the authors find a significant negative influence, and in the case of Germany, the UK and the USA there were even positive effects.

An important extension of Bailey et al.'s 1987 study consisted in also investigating the effects of real exchange rate fluctuations on export flows for the seven main OECD countries. For most of these countries the variability of real exchange rates also had no significant effect on exports. Only for two countries, namely the Federal Republic of Germany and Italy, were there significant negative effects on exports.

Hardy and Herrmann (1988) tested the effect of exchange rate risk both on the total trade and on the bilateral and sectoral trade of four countries – the Federal Republic of Germany, France, the UK and the USA. In addition, they investigated the influence on prices of global exports and imports of the four countries.

Four risk measures were estimated to approximate exchange rate risk and incorporated in the econometric analyses: the variance of daily changes in the nominal exchange rates (NV), the average quadratic proportional deviation of the daily forward rate from the corresponding spot rate (FV), the sum of quadratic deviations of the nominal exchange rate changes from a moving 24-month average (MV) and a moving 21-month average of the quadratic residuals of a simple AR(3) estimation of the log of the real exchange rate in the period 1972 to 1986 (RV). A systematic or generally valid influence of exchange rate risks on export trade flows could not be demonstrated. The results varied widely depending on which individual risk measure was applied. Significant results were mostly found when the impact of the longer term risk variable and the real exchange rate variable were tested.

On the global level significant influences of increased exchange rate risk were hardly detected. An exception were the results for the total exports of the Federal Republic of Germany. It seems they are negatively affected by increased exchange rate variability. Thus, this study confirmed the majority of findings in the empirical literature. Dependence on exchange rate risks could not be demonstrated for the global trade flows of the remaining three countries. The coefficients of the risk variable were either not significant or were dependent on the choice of the uncertainty measure.

In a cross-section analysis of bilateral trade flows of the ten largest industrial countries (accounting for about 60% of world trade at that time), de Grauwe and Bellevoid (1986) compared the influence of exchange rate uncertainty in the fixed rate period (1960–69) and in the floating rate period (1973–84). Like Steinherr (1985), the authors are of the opinion that it is more likely to be long-term exchange rate fluctuations that give rise to uncertainty and have an effect on the allocation of resources. Two measures were used as an uncertainty indicator: the standard deviation and the mean absolute deviation of the annual rates of change in bilateral exchange rates from their period averages. This second measure, in contrast to the standard deviation, treats all observations, including outliers, equally. The two measures were calculated for nominal and real exchange rates.

De Grauwe and Bellevoid found the expected negative relationships, most of which were statistically significant. The largest uncertainty and clearest trade-dampening effect seem to originate from fluctuations in real exchange rates. These results were confirmed in a revised version using the same countries (de Grauwe, 1988).

Edwards (1987) also used a cross-section analysis in his case for 23 developing countries, not only to determine the effect of exchange rate uncertainty on real exports, but also on overall economic growth, on real per capita income and on the average investment-output ratio. He

based his study on the period between 1965 and 1971 (pre-floating period) and 1978 to 1985 (floating period). He calculated the uncertainty measure from the real effective exchange rates and from the real exchange rates against the US dollar. He employed the coefficient of variation, i.e. the standard deviation of the residuals from a regression divided by the arithmetic mean of the dependent variable.

In the Bretton Woods era, all four economic variables remained unaffected by exchange rate uncertainties. This changed in the floating period. For this period Edwards established a negative effect on the growth of real gross domestic product, on the investment-output ratio and on real per capita income, but no negative effect on real exports. In the case of the latter, there were even positive relationships, but these were not significant. Exchange rate uncertainty thus had an effect, in the first instance, on investment decisions and, possibly, on export prices, although this was not tested.

Savvides (1992) also estimates the influence of exchange rate fluctuations on international trade within the framework of a cross-section analysis. The real exports of 62 industrial and developing countries are included in his calculations. The period under investigation runs from 1973 to 1986. Klein assumes that it is not exchange rate fluctuations *per se* that influence international trade, but that it is the unforeseen or unforeseeable fluctuations. He defines the latter as the difference between actual and expected exchange rate fluctuations. The expected exchange rate is estimated using regression analysis. Savvides's results show that the expected exchange rate fluctuations have no influence on international trade, but that unanticipated fluctuations do have an influence. That influence is negative.

Bilateral trade

Cushman (1983) investigated the influence of exchange rate fluctuations on trade flows between the Federal Republic of Germany and the USA, as well as on the bilateral trade of these countries with France and the UK. Cushman used two uncertainty measures calculated from real exchange rates: the first is a so-called 'expectation variable', which captures exchange rate expectations that arise when the exchange rate deviates over a longer period from purchasing power parity; the second is the standard deviation of the changes in the real exchange rate, the so-called 'risk variable'. Cushman obtained clearly negative influences on most export flows, although these influences are delayed in their appearance. A negative influence on exchange rate risks is noted in particular in the trade of the USA with France, Canada and Japan. The same is true of German exports to France and the UK. On the other hand, British exports to Germany are stimulated by exchange rate uncertainty.

Steinherr (1985) looked into the effects of exchange rate uncertainty on global and bilateral trade flows, more specifically on the total exports of the USA, the UK, Belgium and Germany, as well as on bilateral exports of the last three to the USA. Steinherr used an uncertainty measure that captures longer-term exchange rate risks, as, in his opinion, it is these which can disturb international trade. He constructed a measure of uncertainty which contains the deviation of the actual exchange rate from a rate corresponding to purchasing power parity, and which incorporates the hypothesis that exchange rate uncertainty is probably greater, the greater the spread between the maximum and the minimum rate during a period. Steinherr used annual figures and investigated the time period 1960–84. He found that for most trade flows there were significant negative effects from exchange rate risks. Total British exports were an exception to this, as during that period a significantly positive effect resulted. It must

be noted that Steinherr did not divide the observation period into a fixed-rate system and a floating system, and that his findings can therefore not be solely attributed to the system of flexible exchange rates.

In a later investigation that Steinherr carried out with Perée (Perée and Steinherr, 1989), he used a further uncertainty measure to test the hypothesis that uncertainty increases with rising degree and duration of the misalignment of exchange rates. The uncertainty measure designed to capture this circumstance, uses the integral of misalignment over a relevant past period. Again, the observation period includes the fixed exchange rate period, but lengthens the overall period by one year to 1985 (1960 to 1985). The results differ from those of the first study primarily in that negative signs were now established for the UK. In the case of the USA, too, a switch in the signs was registered.

Thursby and Thursby (1985) tested the influence of short-term exchange rate fluctuations on the total trade of 20 countries and on their bilateral trade flows. Using monthly figures for real and nominal exchange rates, three uncertainty measures are calculated: the mean absolute percentage changes during a year, the standard deviation of percentage changes during a year, and the standard deviation of residuals from a quadratic time-trend regression. For the total trade of the 20 countries the authors found no significant values for the uncertainty variable. The results for the bilateral trade flows showed no clear tendency. They varied according to uncertainty measures used and currency. Positive relationships were also established. However, the negative relationships were practically the only ones with statistical significance. The investigation by Thursby and Thursby shows that exchange rate fluctuations have less effect on world trade as a whole than on the geographical structure of trade flows of the individual countries.

In the Hardy and Herrmann (1988) study, too, it was not possible to identify clear effects of exchange rate uncertainties on bilateral trade flows in a larger number of cases. Both negative and positive signs were established for the risk measures, and most of them were not statistically significant. The results varied strongly depending on the measure of uncertainty applied. However, some tendencies could be ascertained in the case of German exports to France and to the UK. For the majority of the tested measures of uncertainty, a significant negative influence of exchange rate risk was established for German exports to France, and a predominantly positive one, on balance, for exports to the UK. On the other hand, significant negative influences were detected in British exports to the Federal Republic. In general it was clear that the reaction to exchange rate uncertainties is stronger in intra-European trade than in trade with third countries, for example with the USA.

The effect of exchange rate risk on the regional structure of foreign trade flows of the four countries in question was more unambiguous than that on global trade flow. This may imply that companies find it easier to switch from one foreign market to another, than from a foreign market to the domestic market, or from the production of tradeables to the manufacture of goods which are not subject to exchange rate risk. Nonetheless, this behaviour is rarely observed, as the findings show: the results do not support the above hypothesis in all markets and numbers are lower on the export side than on the import side. For this test a relative risk measure was applied, i.e. the ratio of the variance of the bilateral real exchange rate to the variance of the effective real exchange rate of the exporting country (RRV).

Within the framework of a stability test for the export function of the USA, Arize and Gosh (1994) also investigated the influence of exchange rate uncertainty. They established a significant negative effect on the demand for US exports. The investigation period was 1973 to 1991. Four uncertainty measures were tested: a five-quarter moving average of the standard deviation of quarterly exchange rate change; a conditional volatility measure which was derived from estimation of an ARCH (autoregressive conditional heteroscedasticity) model; a third measure consists of the recursive residuals from a fourth-order autoregressive process of exchange rate change; the fourth measure fits the residuals obtained from the ARIMA (1,1,0) process to the logarithm of exchange rates (p. 351).

Sapir et al. (1994) found no link between trade volumes and exchange rate volatility in bilateral intra- and extra-Community trade. But it could be shown that the direction of period-to-period exchange rate changes matters more for trade flows than their magnitude. Trade flows between ERM and non-ERM countries are particularly sensitive to exchange rate misalignments. Intra-ERM trade was much less affected.

Sectoral trade

Early investigations into the effect of exchange rate variability on individual industrial sectors were confined to single countries. Maskus (1986) investigated US imports and exports in the following sectors: agriculture, raw materials, the processing industry as a whole, chemicals, machinery, motor vehicles and a group of 'other manufactured goods'. The investigation period was 1974 to 1984. The uncertainty measure is composed of two parts – the nominal exchange rate risk and a proxy for price risk. He measured exchange rate risk as the difference between the spot and forward exchange rates, while price risk is measured as the deviation of the realized from the expected inflation difference to foreign countries. The risk measures were calculated from monthly figures.

In all Maskus tested 64 equations. In 58 cases the sign of the risk variable was negative, and in 26 of those cases it was statistically significant. Trade in agricultural products showed the greatest negative effect. It seems that trade in machinery, chemicals, motor vehicles and 'other manufactured goods' is influenced to a lesser extent, although still clearly dependent on exchange rate risk. Seen from a regional point of view, the merchandise trade with Germany was disturbed most by exchange rate uncertainty. This was much less the case for US trade with Japan and Canada. Trade with the UK is practically unaffected by exchange rate uncertainty.

Gosling (1986) tested the effect of exchange rate fluctuations on export volume and export prices of selected industrial sectors in the UK for the period 1977 and 1985. The study concentrated on six sectors: chemicals, clothing and footwear, textiles, scientific instruments, machinery and motor vehicles. Three sectors, namely chemicals, machinery and motor vehicles, were subdivided further. The standard deviation of the daily nominal exchange rate was applied as an uncertainty measure. While Gosling could not establish any negative influence of exchange rate fluctuations on total British exports of industrial products, negative reactions were found in all sectors. The exceptions to this were clothing and footwear.

The results for export prices were more mixed. While the chemical and motor vehicle sectors reacted with higher export prices to higher exchange rate uncertainty, in the engineering industry and clothing and footwear, export prices are reduced under conditions of exchange

rate uncertainty. Gosling sees a relationship between the extent of invoicing in local currency and pricing. If this proportion is relatively low, as in the chemical and motor vehicles industries, the exporter bears most of the exchange rate risk, and he passes on his hedging costs in prices. In sectors with a high share of invoicing in local currency, the foreign buyer bears the exchange rate risk and thus the hedging costs. In order to counteract this cost-increasing effect, British exporters are found to reduce their export prices.

Hardy and Herrmann (1988) found that at the sectoral level negative, and positive, effects of exchange rate uncertainty occur more often than on a global level. However, in three countries – France, the UK and the USA – the majority of sectors displayed no significant influences, neither on the export nor on the import side. Negative effects were more frequent on the export side and positive influences more frequent on the import side. Only in three of the total of 75 sectors investigated were significant trade-promoting effects registered on the export side, whereas on the import side these effects were registered in 24 out of a total of 78 cases. This result indicates that the theoretically deducible strategy of increased business activity under conditions of high risk is expressed above all in the form of increased imports, possibly as a form of real hedging of the increased risk in the export business. The largest number of sectors with negative reactions to increased exchange rate risk were found in Germany, i.e. 13, while in France, for example, not a single sector reacted with lower exports.

Klein (1990) investigated the effects of fluctuations of real exchange rates on nine categories of products in bilateral exports of the USA to seven larger industrial countries. The nine product categories are the single-digit SITC classifications, i.e. food and live animals, beverages and tobacco, crude materials except fuels and lubricants, oils and fats (animal and vegetable), chemicals and related products, manufactured goods by main material, machinery and transport equipment, and miscellaneous manufactures. The importing countries are the UK, West Germany, France, Italy, Japan, the Netherlands and Canada. The investigation period was 1978 to 1986. In constructing the measure of volatility, consideration was given to the view that exchange rate fluctuations between two countries will only have an effect on their bilateral trade to the extent that the fluctuations differ from those against another country. So the comparative volatility term represents the volatility of the bilateral exchange rate between the USA and the importing country relative to a weighted average of the volatility of the bilateral dollar exchange rates of all importing countries in the 'sample'. The influence of this variability measure is not tested on the absolute export values, but on the share of bilateral exports of one product category in total US exports in this product category to all seven countries included in the investigation.

US exports of six of the nine product categories to the entire group of countries are clearly influenced by the volatility of real exchange rates. In five cases exports are stimulated, namely in machinery and transport equipment, manufactured goods, chemicals, oils and fats, and fuels and lubricants.

6.3.2. Impact on traded goods prices

Hardy and Herrmann (1988) found that exchange rate risk is reflected in an increase in foreign trade prices. The coefficients of the uncertainty variable in the price equations were almost all highly significant. Exchange rate risk thus indirectly impairs trade flows when higher-price supply meets price-elastic demand. In the many cases in which significant negative results for

foreign trade could not be demonstrated, whether on a global or a sectoral level, it is quite possible that foreign exchange flows have been impaired indirectly.

Sapir and Sekkat (1990) refer to the pass-through approach of exchange rate theory, i.e. to the responsiveness of traded goods prices to exchange rate changes (Krugman, 1986, 1989). They tested the hypothesis that the incentive to change export prices is smaller, the more volatile the exchange rate. In their price equations they also captured the possibility that the pass-through of prices varies according to market structure. The price equations were calculated separately for seven industries and over a sample of five importers (France, Germany, Italy, the UK and the USA) and eight exporters (the five countries already mentioned plus Belgium, Japan and the Netherlands). The regression results show that volatility has generally no impact on the exchange rate pass-through.

6.3.3. Impact on direct investment

The literature on the effects of exchange rate uncertainty on direct investment is not as extensive as that on trade flows. Cushman (1983) investigated the effects of three exchange rate variables: the foreign exchange rate, an expectation variable and a risk variable. In his model he assumes a two-period time frame 'where the firm implements capital investment in the current period in order to realize profits in a future period for which price levels, the nominal exchange rate and hence the real exchange rate are uncertain' (p. 298). For his tests he used annual bilateral direct investment flows from the USA to the UK, France, Germany, Canada, and Japan for the years 1963 through 1978. He found that fluctuations in the real exchange rate can lead to a variety of effects on direct investment. If the real value of the foreign currency appreciates, direct investment is reduced. The same effect can be shown in association with an expected appreciation of the foreign currency. Yet, increases in risk raise direct investment. In this case, direct investment is seen as a substitute for exports, the profits of which become uncertain.

Morsink and Molle (1991) started from the deliberation that investment capital looks for secure investment opportunities. Hence investment capital will circumvent exchange rate uncertainties. The authors tested the hypothesis that a high variability in exchange rates will limit the direct investment flows between two countries. The country sample was the net direct investment flows between the EUR-12 countries. The investigation period was subdivided into two periods: 1975–79 and 1980–84. Five uncertainty measures were used, derived from the nominal, monthly, bilateral exchange rates. The authors did not succeed in demonstrating an unambiguous effect on investment flows. In some specifications of the direct investment flow equation, a significant negative effect was established, in others not.

6.4. Conclusions

The different ways in which companies react to exchange rate risk can be seen in the results of empirical studies. No systematic influence of exchange rate risk on flows of foreign trade has been detected. Neither has the hypothesis been borne out as a general supposition that foreign trade flows might be reduced or that they might be increased. All studies have shown that exchange rate risks have the effect of both curtailing and expanding trade. In many cases no effects have been discerned, i.e. the coefficients of the regression equations have proved insignificant. All empirical studies have shown that the measure of risk chosen has an important bearing on results. But just how exchange rate risk might best be statistically

defined is a question which still remains to be answered satisfactorily. There is evidence that trade flows are more affected by longer-term and real exchange rate uncertainty than by short-term volatility of the nominal exchange rate.

Perhaps the clearest tendency which can be discerned is for Germany and the UK. Exchange rate volatility seems to have a negative effect on the exports of Germany and a positive impact on British exports, though in the case of the latter not all coefficients are statistically significant.

Bilateral trade flows have been seen to produce similarly diverging results (see *inter alia* Cushman, 1983; Steinherr, 1985; Hardy and Herrmann, 1988; Sapir et al., 1994). However, it turned out that the significant results are concentrated in a number of EU countries, namely German exports to the UK and France, and all British exports.

More frequently than at a global level, the negative effects of exchange rate risks have been identified at the sectoral level (see *inter alia* Maskus, 1986; Gosling, 1986; Hardy and Herrmann, 1988; Klein, 1990). In the Hardy and Herrmann study, they were more often observed on the export side than on the import side. Indeed, on the import side, out of a total of 78 cases studied, 24 showed positive effects. Exports increased in only three cases. The theoretically deducible strategy of increasing business activity in the context of increased risk would seem to manifest itself first and foremost in the form of increased imports, perhaps as a kind of real hedging of the increased risk on the export side.

Empirical studies have produced clearer results for the hypothesis of regional reorientation of trade flows as a way of hedging exchange rate risks than for global trade flows (Hardy and Herrmann, 1988). It would seem that companies find it easier to switch from one foreign market to another foreign market than to redirect the flows of goods to their domestic market.

Other empirical studies as well as information from company circles (see v. Neumann-Whitman, 1984) reveal that relocating production plants abroad, i.e. diverting investment to foreign countries, is another way of circumventing exchange rate risk. But all in all the authors were not successful in demonstrating an unambiguous effect.

Finally, businesses are in a position to deploy a variety of financial hedging strategies and internal company measures. Company interviews together with the findings of previous written questionnaires show that it is unquestionably the financial hedging strategies which constitute the main way in which companies hedge against exchange rate risk. These results are more or less in line with the 'separability' approach.

7. Evaluation of the questionnaires and company interviews: intercountry comparisons of company strategies

7.1. Introduction

In a world with a multitude of currencies that are linked via flexible exchange rates, firms engaged in international trade and investment face a number of risks in addition to those common to all planning decisions. Expectations about future developments abroad, economic and political, include expectations about short-term and long-term changes in exchange rates. Investment plans, be they for domestic plants producing exports or for production facilities abroad, depend significantly on the firms' expectations regarding the long-term trend in exchange rates. Real hedging measures may be the preferred strategy to minimize the long-term exchange rate risk.

Over the shorter horizon, day-to-day and month-to-month currency volatility may eliminate any profits from the firms' real activity if exchange rate risk remains unhedged. To reduce the risk of loss due to currency movements, firms follow certain strategies of currency risk management, prominently among them financial hedging measures.

In this chapter an attempt is made to identify systematic influences of a number of important causes on the strategies and costs of managing multiple currencies: currency volatility, firm size, direction and intensity of trade, degree of capital market liberalization, the effect of the ERM turbulences in the autumn of 1992, among others.

While the responses to the mail survey help to identify the state of affairs as of autumn 1994, the interviews provide crucial information about the reasons for changes in firms' strategies and costs since the late 1980s.

7.2. Volatility differences

Currency volatility in Europe, as measured by the standard deviation of daily percentage changes of bilateral exchange rates, was presented in Table 5.1. It identifies the UK, Italy and Spain as high volatility countries, France and Germany as low volatility countries. We venture the hypothesis that currency risk management will differ according to the volatility of the currency involved.

7.2.1. Importance of time periods of exchange rate fluctuations which prompt business strategies

The questionnaire contained several questions about the responses and strategies of firms to the volatility of exchange rates in Europe. The findings are reported below.

More firms from the high volatility countries pay attention to day-to-day and month-to-month fluctuations in exchange rates than firms from the low volatility countries (see Table 7.1). In the same vein, a third of the firms from the low volatility countries state that their strategies are prompted by quarter-to-quarter fluctuations and over 60% of these firms react to long-term exchange rate changes only. These responses are export weighted. If the responses are

weighted by the turnover of the panel firms, the answers correspond quite closely to those above, but the differences between the high and the low volatility countries are much less pronounced. It seems that firm size mutes the reaction to exchange rate changes in low volatility countries, especially regarding long-term exchange rate changes. The importance of firm size was also confirmed by the company interviews.

7.2.2. Importance of different currencies to company strategy

Looking at the foreign currencies which are of the greatest importance to the companies surveyed (Table 7.1a), we find that for all five countries the US dollar leads the list (76%). It is followed by ERM currencies (72%) and non-ERM EU currencies (49%).

Companies from the group of high volatility countries (the UK, Italy, Spain) expressed a much stronger preference for defensive strategies against ERM currencies compared with non-ERM EU currencies (66% to 29%) than did those from the low volatility countries (France and Germany) (78% to 69%). Since sterling and the lira left the ERM in 1992, it makes sense that fluctuations of these currencies against ERM currencies are more important to British and Italian company strategy than are fluctuations of other currencies.

For France and Germany, defence strategies are triggered in particular by fluctuations of their currencies against the US dollar. However, slightly more firms from these two countries consider fluctuations in the other ERM currencies important to their strategies than fluctuations of non-ERM EU currencies. This is, no doubt, also due to the direction of trade, a function of the relatively large size of the ERM countries' markets.

7.3. Corporate hedging strategies

The mail survey as well as the company interviews gave important insights into the hedging strategies employed in different countries.

The following are some of the key findings from the interviews and the mail survey on the companies' approaches to hedging:

(a) *The size of the firm.* The larger the company, the more its real activity is divorced from the currency risk management function. Whereas the smaller firms hedge about 50% of all European currency risks and a slightly higher percentage of non-European foreign exchange positions, the larger firms see less need to hedge ERM currency risk, but hedge about 75% of other EU and non-European currency risk. There was no evidence that larger firms necessarily take a more sophisticated approach than smaller firms. Nor does the complexity of the hedging instrument seem to be related to the export share in total turnover, but rather to the company's attitude toward risk.

(b) *Size and flow of transactions.* Firms are more likely to hedge large transactions than small transactions. Where firms have a regular high volume flow of low value transactions they are less likely to engage in hedging activities, especially where these transactions are conducted in a variety of currencies. Here the losses in some operations can be offset by gains in others. Furthermore, as the trading share rises, financial hedging becomes an ever more important aspect of corporate strategy.

(c) *Perspective of company.* Some firms take a strategic approach to their foreign exchange management rather than the transactions approach which seems to be more common. With a high but largely predictable volume of low value transactions some companies

assessed their net foreign currency requirements over forthcoming months and took out forward positions to cover these.

The mail survey questionnaire was quite detailed with respect to the different strategies a firm could use to hedge the exchange rate risk. A two-stage approach was employed: a first question tried to differentiate between real strategies and financial strategies, then a second question detailed the various financial strategies and also asked about in-house measures like pricing policy. In this way a wide spectrum of responses was achieved.

7.3.1. Real hedging measures

Some form of real hedging was employed by around 20% of all responding firms: in the export-weighted sample (Table 7.2a), shifting production abroad was the most often cited strategy, followed by increased domestic market orientation and reorienting exports to countries with a more stable exchange rate *vis-à-vis* the local currency. The export-weighted sample had only a small proportion of firms (12%) switching the sourcing of imports to countries with a more stable exchange rate. The turnover-weighted sample (Table 7.2b) showed a more even picture, although here, too, the reorientation of imports to countries with a more stable exchange rate was less frequently mentioned than the other real strategies. This may be explained by the fact that exports are usually much more geographically dispersed than imports, making it easier to switch exports than imports in response to exchange rate volatility.

Distinguishing once more according to high and low volatility countries, we found that among the high-volatility group (the UK, Italy, Spain) the preferred real strategy was the reorientation of exports to countries with a more stable exchange rate. Spain, in particular, accorded great importance to a reorientation of exports to EU countries. The low volatility group (France and Germany) expressed a relative preference for increased domestic market orientation and shifting production facilities abroad. The same tendencies, albeit less pronounced, are found when the responses are turnover-weighted.

Table 7.1a. Importance of time period of exchange rate fluctuations and importance of different currencies (weighted with exports of responding firms)

Country	Number of responding firms	Business strategies prompted by ...				Important are fluctuations of local currency against...			
		... short-term exchange rate fluctuations			... long-term exchange rate changes				
		day-to-day	month-to-month	quarter-to-quarter		...ERM currencies	...EU (non-ERM) currencies	...US dollar	...others
UK	249	55	81	39	116	127	65	150	14
Italy	169	51	63	30	42	148	55	113	25
Spain	210	32	63	40	34	137	61	141	13
France	401	40	99	102	188	297	255	333	156
Germany	240	22	24	113	202	206	190	223	156
Total	1269	200	330	324	582	915	626	960	364
Percentage	100	16	26	28	48	72	49	76	29
High volatility countries (UK, Italy, Spain)									
Total	628	138	207	109	192	412	181	404	52
Percentage	100	22	33	17	31	66	29	64	8
Low volatility countries (France, Germany)									
Total	641	62	123	215	390	503	445	556	312
Percentage	100	10	19	34	61	78	69	87	49

Table 7.1b. Importance of time period of exchange rate fluctuations and importance of different currencies weighted with turnover of responding firms)

Country	Number of responding firms	Business strategies prompted by ...				Important are fluctuations of local currency against			
		... short-term exchange rate fluctuations			... long-term exchange rate changes				
		day-to-day	month-to-month	quarter-to-quarter		...ERM currencies	...EU (non-ERM) currencies	...US dollar	...others
UK	249	55	83	36	115	120	64	144	13
Italy	169	51	63	31	42	150	55	113	26
Spain	210	27	50	32	48	126	50	153	13
France	401	36	61	83	115	246	178	297	93
Germany	240	34	24	101	192	202	187	211	150
Total	1269	203	281	283	512	844	534	918	295
Percentage	100	16	22	22	40	67	42	72	23
High volatility countries (UK, Italy, Spain)									
Total	628	133	196	99	205	396	169	410	52
Percentage	100	21	31	16	33	63	27	65	8
Low volatility countries (France, Germany)									
Total	641	70	85	184	307	448	365	508	243
Percentage	100	11	13	29	48	70	57	79	38

Table 7.2a. Business strategies against exchange rate fluctuations (weighted with exports of responding firms)

Country	Number of responding firms	Increased domestic market orientation	Reorientation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Reorientation of imports to countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
UK	279	20	43	20	14	170	106	116
Italy	162	32	19	22	18	134	92	27
Spain	210	31	65	34	10	103	107	38
France	401	131	69	64	125	257	248	69
Germany	223	13	18	7	158	214	152	13
Total	1275	227	214	147	325	878	705	263
Percentage	100	18	17	12	25	69	55	21
High volatility countries (UK, Italy, Spain)								
Total	651	83	127	76	42	407	305	181
Percentage	100	13	20	12	6	63	47	28
Low volatility countries (France, Germany)								
Total	624	144	87	71	283	471	400	82
Percentage	100	23	14	7	45	75	64	13

Table 7.2b. Business strategies against exchange rate fluctuations (weighted with turnover of responding firms)

Country	Number of responding firms	Increased domestic market orientation	Reorientation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Reorientation of imports to countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
UK	279	20	39	21	13	163	107	117
Italy	162	32	20	23	19	134	90	27
Spain	210	29	88	27	23	105	84	42
France	401	126	94	116	68	209	197	76
Germany	223	20	27	16	138	207	138	9
Total	1275	227	268	203	261	818	616	271
Percentage	100	18	21	16	20	64	48	21
High volatility countries (UK, Italy, Spain)								
Total	651	81	147	71	55	402	281	186
Percentage	100	14	23	11	8	62	43	29
Low volatility countries (France, Germany)								
Total	624	146	121	132	206	416	335	85
Percentage	100	23	19	21	33	67	54	14

The greater share of firms from Germany and France opting for shifting production abroad (45%), and reorienting their output to the domestic market (23%), may actually reflect the firms' response to an appreciating domestic currency which makes exporting very difficult. Another explanation as to why German and French firms are engaged in more real hedging activity than the other countries may lie in the fact that these are the countries with the largest domestic markets, which makes a reorientation towards the home market a feasible strategy. In the Irish case, in contrast, the interviews suggested that real strategies were not a true option because the size of the home market was too small to make a reorientation of exports possible, while the average size of the firms was too small to seriously consider moving production abroad. It seems appropriate to generalize these findings to other small EU countries like Portugal and Greece.

7.3.2. Financial hedging strategies

Financial hedging measures were by far the most frequently employed strategy, cited by two-thirds of all firms questioned. More firms from the low volatility group (75%) mentioned financial hedging than from the high-volatility group (63%). The most frequently used financial hedging instrument is the use of forward contracts, followed by the discounting of foreign currency bills. Factoring and exchange rate insurance are of less significance, accounting for a share of less than 33% for the majority of firms.

Especially in Germany, the UK and France, hedging in the forward market was used in more than two-thirds of all cases. In Italy and Spain, this proportion is considerably smaller. The interviews confirmed that especially the smaller firms prefer forward market transactions. While the larger firms also use option trading, they still favour forward contracts in a ratio of three to one.

The discounting of foreign exchange bills is of any significance only in Italy, factoring is rarely used in any of the countries, and exchange rate insurance seems to play some role in Germany and to a lesser extent in Italy.

7.3.3. Determinants of the choice of hedging instrument

In all countries, cost is the major determinant of the instrument chosen to hedge the exchange rate risk, closely followed by the payment period. In Germany, more than in the other countries, technical handling also seems important (see Table 7.3).

Besides the fact that forward transactions, in contrast to options, involve no up-front costs, they are also favoured because they provide a known amount at a specified date, and are easy to understand, monitor and operate.

An acknowledged disadvantage of forward exchange transactions is the difficulty which can arise if a client fails to pay on time, leaving the company with a forward liability due for redemption. The companies deal with these eventualities either through operations on the spot market or they try to compensate by advancing or delaying other currency flows.

Table 7.3. Reasons for different forms of financial hedging (weighted by exports of responding firms)

Country	Number of responding firms	'Reason is important' as % of total responses				
		Cost	Payment period of accounts in foreign currency	Technical handling	Flexibility of instrument	Other
UK	99	44	30	45	20	26
Italy	141	65	65	40	62	6
Spain	210	32	17	17	20	4
France	401	69	64	56	54	14
Germany	189	97	91	81	89	13

7.3.4. In-house measures

Besides real hedging and financial hedging strategies, the survey also identified other measures a firm may employ to reduce the exchange rate risk involved in foreign transactions (Table 7.4). In Germany, Italy and – to a lesser extent – in France, the netting of foreign currency assets and liabilities is the preferred kind of in-house measure used. In the UK, changing the terms of payment is more popular.

Pricing policy was only cited by one-third of the firms. The fact that most firms are price-takers was advanced as the reason why Irish firms hardly use pricing policy at all. On the other hand, the German interviews showed that small exporters, with close relationships to their foreign customers, are likely to use pricing policy to offset the exchange rate risk (for their customers). On the other hand, big companies offering a differentiated product may be better suited to use pricing policy.

Increased invoicing in domestic currency is the preferred in-house policy in Spain and also plays a role in the UK. While a switch to invoicing in other, less volatile, currencies is of some significance, increased invoicing in ECU is not considered a desirable option.

Finally, employing more staff in currency management was mentioned by 55% of the surveyed firms in Germany and by almost half of the firms in France. From the interviews it emerged that adding staff was not a viable policy in times of general downsizing, but that responsibility for risk management may be shared by more people.

Table 7.4. Other measures besides financial hedging strategies (weighted by exports of responding firms)

Country	Number of respond-ing firms	Answering 'yes' as % of total responses						
		Netting of foreign currency assets/liab.	Changing terms of payment	Pricing policy	Increased invoicing in dom. currency	Increased invoicing in ECU	Increased invoicing in another currency	Increased staff in currency managmt.
UK	138	33	64	43	46	1	41	12
Italy	144	74	25	24	28	3	20	12
Spain	210	25	26	32	40	1	14	44
France	401	46	43	37	14	1	14	49
Germany	215	89	27	34	22	0	48	55

7.4. Changes in business strategies

On the whole, the companies have developed a more systematic and sophisticated approach to foreign exchange management since the late 1980s. This is largely regarded as a consequence of a greater awareness of the issues involved, together with increasing skills. In France recourse to hedging instruments has often gone hand-in-hand with changes in industrial policy: some companies have integrated considerations of exchange risk in their choice of foreign suppliers; or they have moved their production to countries with low currency risk. The approach of French firms to risk management has become more organized and systematic since the early 1990s. Firms in Germany and the UK claimed that their actual business strategy towards managing multiple currencies and exchange rate risk had not altered significantly since the late 1980s.

The effects of the single market on changes in strategy after the late 1980s seem to be more or less limited to Italy and Spain which were latecomers in realizing the advantages of free capital movement and financial market deregulation. In Spain, although some changes were due to internal company restructuring, there was a general shift towards increased invoicing in the more stable EU currencies. There was also increased use of financial hedging because transactions in these currencies had become easier to handle and because new products had become available. The larger companies, with special risk management departments and greater sophistication in the use of different instruments, said that their hedging strategies have changed. For some, the combination of greater ease of transaction and greater stability of exchange rates has led to less hedging against EU currencies, because the risks are considered smaller.

In Italy, the effects of the single market are reflected in the liberalization of the capital markets, greater competition and greater efficiency of the financial sector. Not only have transactions been facilitated by the abolition of certain types of documentation and contract notes, but firms are also permitted to have bank deposits abroad. All banks now pay interest on foreign currency accounts and there is also a greater variety of financial products. This has influenced the choice between different financial strategies. Before 1992 most Italian firms did little hedging against ERM currencies. The EMS crisis changed that, especially after the major devaluations of the lira had been completed and exchange rate changes had become a two-way

bet again. As long as there were expectations of further devaluations of the lira, foreign currency export earnings were not hedged. Now all foreign currencies are treated alike.

In the UK, firms did not report any significant difference in the strategy they adopted towards countries in the EU and those outside the Union. Sterling/dollar transactions tended to be regarded in a similar manner as sterling/DM transactions, for example. This was closely connected to the events in 1992, however. After sterling left the ERM, some firms were more likely to consider hedging sterling against other currencies in the ERM than before. But one firm commented that they had always hedged sterling against other ERM currencies simply because of the range of movement allowed within the mechanism. Even a 2% shift in exchange rates can endanger a tight profit margin.

In Germany, changes were initiated in the wake of the 1992 turbulences because of the greater risk connected with those currencies which had left the ERM. Before that time, firms had seen little need to hedge the currencies in the ERM whose exchange rates had remained largely unchanged for years. On the export side, protection increased against the weaker currencies which have experienced greater fluctuations against the DM.

In France, European currencies are not considered to be of a specific nature: exchange risks associated with these currencies are hedged in the same way as risks associated with the US dollar or the yen. To be sure, some instruments may be more adapted to certain currencies; for example, the wide fluctuation of the Italian lira does not permit the use of options as a hedging instrument.

Finally, in Ireland, the importance of exchange transactions has increased dramatically since 1979 when Ireland entered the ERM and parity with sterling was abandoned. In addition, during the past ten years, the volume of Irish trade has doubled and has been redirected towards EU countries and away from the UK. For Ireland the major currencies are sterling and the US dollar. More than half of the foreign currency liabilities are hedged, the preferred instrument being forward market transactions. The maintenance of foreign currency accounts also permits the netting of foreign assets against foreign liabilities.

7.5. Summary

It appears that all firms which engage in foreign trade and investment have become quite adept in hedging their exchange rate risk. The sophistication of larger firms' hedging strategies has increased. Smaller firms, too, are more aware of the risks and costs involved in dealing with multiple currencies. They rely heavily on the banks for advice and currency risk management. There seems to be little difference between dealing in EU currencies and non-EU currencies.

Striking is the difference in the perception of the effects of the single market between the UK, France and Germany, on the one hand, and Spain and Italy, on the other. One reason may be that Spain, as a latecomer to the EU and to financial market deregulation, is more aware of the effects of the single market because it has benefited more than the more advanced countries from the enlarged market and the progress in financial services, which have become available since the late 1980s. Italy, though a founding member of the EU, was a latecomer with respect to capital market liberalization. That is why, like Spain, it has appreciated the greater availability of financial services and financial products since the late 1980s.

In Chapter 6 we presented a noteworthy econometric study of the effects of currency volatility upon G7 countries' trade since the mid-1970s by Chowdhury (1993). He finds that:

> If market participants are risk averse, these results imply that exchange rate uncertainty causes them to reduce their activities, change prices, or shift sources of demand and supply in order to minimize their exposure to the effects of exchange rate volatility. This, in turn, can change the distribution of output across many sectors in these countries (p. 705).

The present study can corroborate the existence of a great variety of firm strategies – various real hedging, financial hedging and in-house measures – as a response to volatility on the micro level. Two important conclusions can be derived from our micro data set concerning the functioning of the single market: (i) trade inhibiting and trade distorting effects do exist within the present system of multiple currencies in the EU; and (ii) small and medium-sized firms in the EU (particularly in France and Germany) tend to choose such trade inhibiting and distorting strategies more than large firms.

Appendices to Part I

APPENDIX A

Questionnaire: Costs of managing multiple currencies in the EU

Costs of exchange rate fluctuations

I. Characteristics of the firm

1. Branch of industry (PRODCOM)

2. Turnover (in local currency)

- Total (from domestic production)
  of which: sales abroad (exports)
- Turnover of foreign based production facilities

3. Imports

4. Number of employees

II. Foreign trade links

1. Distribution of exports and imports

What percentage of your exports and/or imports went to/came from the following countries in 1994?

	Exports to: share (%)	**Imports from: share (%)**
EUR-12 total		
of which		
Belgium/Luxembourg		
France		
Germany		
Ireland		
Italy		
Netherlands		
Spain		
UK		
Other West European countries		
USA		
Japan		
Rest of the world		

2. Invoicing practices

What percentage of your exports and/or imports are invoiced in the following currencies? (share in %) (please estimate)

Local currency	Exports	Imports
DM		
US dollar		
UK pound		
Other (please list)		

3. Foreign branches (check where applicable).

(a) Does your business have its own production facilities in other countries?

Yes No

If 'yes', in which of the following countries:
ERM countries[24]
Non-ERM countries in the EUR-12 (Greece, Italy, UK)
USA
Others (please specify)

(b) Does your business have its own sales offices in other countries?

ERM countries
Non-ERM countries in the EUR-12 (Greece, Italy, UK)
USA
Others (please specify)

What ____% (please write in estimate) of your exports are handled by company-own sales organizations in other countries?

(c) If you are a branch of a multinational company, is your foreign exchange management handled by your head office abroad?

Yes No

[24] In the Exchange Rate Mechanism of the EUR-12.

III. Exchange rate fluctuations in Europe

In the European single market exchange rates are variable. ERM currencies are subject to fluctuation within established bands.

1. In this context, how has your company reacted with the following company strategies? (please indicate whether they are 'important' or 'unimportant'

- Increased domestic market orientation
- Geographic re-orientation
  - of exports to countries with more stable exchange rates *vis-à-vis* local currency
  - of imports from countries with more stable exchange rates *vis-à-vis* local currency
- Shifting production facilities abroad
- Financial hedging measures[25]
- In-house measures[26]
- Other strategies (please specify) for example:
  - setting up strategic alliances
  - use of sub-contractors in third countries

2.(a) Were your strategies prompted by (check where applicable):

- Short-term exchange rate fluctuations, particularly those from:
  day-to-day month-to-month quarter-to-quarter
- Long-term exchange rate changes

2.(b) For your strategies, what was the significance of fluctuations of the local currency vis-à-vis *the following currencies?*

	Important	Unimportant
ERM currencies		
UK pound		
Italian lira		
US dollar		
Others (please specify)		

IV. Protection against exchange rate risks

1. Were your foreign currency liabilities financially hedged against the following currencies in recent years ? (estimates suffice)

- strongly fluctuating currencies _____ %
- less fluctuating currencies _____ %

---

25 See question IV.2.

26 See question IV.4.

2. *In which manner do you hedge your exchange rate risks? (estimates in %)*

- Forward exchange transactions
- Discounting of foreign currency bills
- Factoring
- Exchange rate insurance
- Other measures (e.g. currency options)

3. *Which of the following factors influenced your choice of hedging?*

	Important	Unimportant
• Cost		
• Payment period of accounts in foreign currencies		
• Technical handling		
• Flexibility of instrument		
• Others (please specify)		

4. *Besides financial hedging, do you also react to exchange rate risks with the following measures? (please indicate yes or no)*

	Yes	No
• Netting of foreign currency assets and liabilities		
• Changing terms of payment		
• Pricing policy (clauses on subsequent price changes)		
• Increased invoicing in local currency		
• Increased invoicing in ECU		
• Increased invoicing in another international currency		
• Increasing staff involved in risk management		
• Others (please specify)		

V. Transaction costs and costs of hedging

1.(a) *What are banks' commissions and other processing fees that accrue when exchanging foreign currency into local currency?*

_____(as a percentage of the amount exchanged)

1.(b) Are the costs for intra-EU transactions less expensive?

Yes No

1.(c) Have these costs changed for intra-EU transactions since the late 1980s?

No change Increased Decreased

2.(a) Do you have specific staff for administering foreign currency transactions?

Yes No

2.(b) What are the annual costs for personnel and equipment for administering various foreign currency transactions (as a percentage of foreign trade)?

- less than 0.5%
- 0.5% to 1%
- 1% to 2%
- 2% to 4%
- more than 4%

2.(c) Have these costs changed for intra-EU transactions since the late 1980s?

No change Increased Decreased

3.(a) What are the annual costs (excluding personnel and equipment costs) for hedging various currencies (as a percentage of foreign trade volume)?

- less than 0.5%
- 0.5% to 1%
- 1% to 2%
- 2% to 4%
- more than 4%

3.(b) Have these costs changed for intra-EU transactions since the late 1980s?

No change Increased Decreased

4.(a) How much longer does a bank transfer from a foreign currency into your local currency take compared to transfers in your local currency?

For EU currencies: about _____ days longer
For non-EU currencies: about _____ days longer

4.(b) Has this time period changed since the late 1980s?

For EU currencies:

	No change	Increased	Decreased

For non-EU currencies:

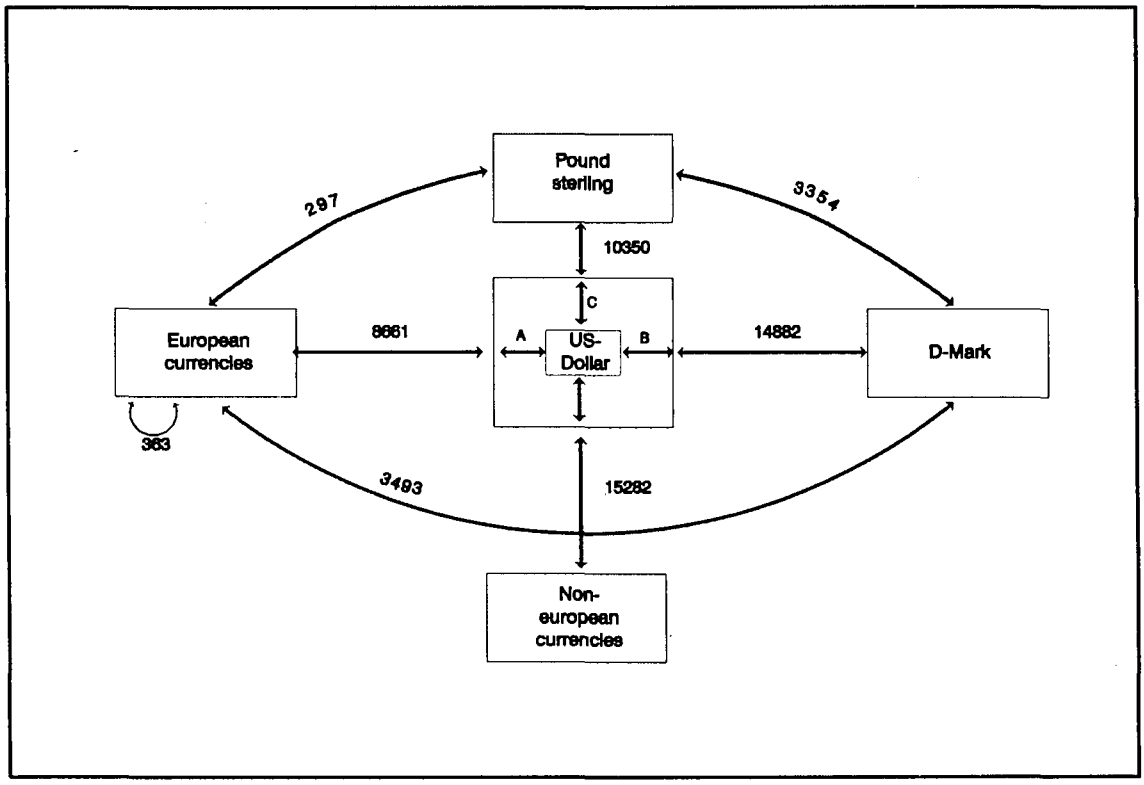
	No change	Increased	Decreased

APPENDIX B

Excursus 1: Methodology of 'filtering out' the foreign exchange volume between EU currencies from total volume of foreign exchange

The total volume of trading in the domestic currency, the pound sterling, was ECU 14,594 billion in 1992 (Table B.1). The transactions which took place between the pound and the DM and between other EU currencies, fall, of course, entirely within the category of intra-EU transactions. They amounted to ECU 3,354 billion and 297 billion respectively. The transactions between the pound sterling and the US dollar, on the other hand, are only taken into account insofar as a further exchange then took place between the dollar and another European currency; such transactions are marked 'A' in Table B.1 and in Figure B.1 (re-exchange of dollar into European currencies – except the DM) and 'B' (re-exchange of dollar into DM).

Figure B.1. Foreign exchange flows between different currencies at the London market-place 1992 (in billion ECU)



Sources: Bank for International Settlements, and IFO Institute.

For the calculation of re-exchange transactions, the proportion of dollar transactions with the DM (ECU 14,822 billion; marked 'B' in Figure B.1 and Table B.1) and the other 'external' European currencies (ECU 8,661 billion; marked 'A' in Figure B.1 and Table B.1) as well as the entirety of the dollar transactions (ECU 49,144 billion; marked 'D' in Table B.1) – a figure of 48% – was transferred to the total figure for pound/dollar transactions (ECU 10,350 billion). This gives a figure of ECU 4,948 billion in 1992. Transactions between the pound

sterling and a non-European currency (NEUC in Table B.1) were not included in calculating intra-EU transactions.

The volume of trading in London involving the DM on one side of the market amounted to a total of ECU 25,264 billion in the year 1992. Account must be taken here of indirect intra-EU transactions, in other words those transactions in which first the DM was exchanged for the dollar, and then immediately re-exchanged for another European currency. Cases where the re-exchange was into pounds sterling are mirror images of the above-mentioned pound/dollar/DM transactions.

The DM/dollar transactions are thus, as in the case of pound/dollar transactions, only then to be included when they are matched by a transaction between the dollar and an 'external' European currency 'A' or the pound sterling 'C'. Also included in the figures for trading between EU currencies are those transactions taking place between the DM and an 'external' European currency. The transactions between the DM and the pound sterling – the mirror image of pound/DM transactions – must still be accounted for on the DM side.

The sale or purchase of European currencies (EUC in Table B.1) in the London trading centre was ECU 12,814 billion. EUC denotes all EU currencies except the DM and the local currency in question; the figures for the latter are listed separately.

The volume of trade between the various EUCs is quite low, even at the international markets in London; it only reached ECU 363 billion. Figures for exchanging EU currencies into the pound sterling were also low (at ECU 297 billion). The transactions between an EUC and the pound, as the other side of the market, are, of course, the same as those between the pound and the EUC.

The transactions between an EUC and the DM (the mirror image of transactions between the DM and an EUC) are much higher, at ECU 3,493 billion. This shows the significance of the DM as a vehicle currency for triangular trading between different EUCs. As in the case of pound/dollar and DM/dollar trading, the volume of trading between an EUC and the US dollar is only counted proportionally. Of a total ECU 8,661 billion in transactions, only ECU 4,439 billion are included in the figures for intra-EU transactions.

Foreign exchange deals in which the US dollar is involved on one side of the market have a volume of ECU 49,115 billion in the year 1992. From this figure, the share of 're-exchange' transactions from the dollar into an EUC (ECU 4,439 billion), from the dollar to the DM (ECU 10,633 billion) and from the dollar into the pound sterling (ECU 4,948 billion) have to be included in the volume of indirect transactions between EU currencies. All these last-mentioned three deals represent the 'other side of the market' of the transactions already mentioned above.

We carried out the same calculations for all the other EU Member States. The results are shown in Table 3.1. This table also shows the average share for intra-EU trading (weighted by volume) as a proportion of all foreign exchange trading in the whole of the EU. This share is 52.6% in 1992 and 53.0% in 1995.

Table B.1. Determination of trading volume between EU currencies in 1992 using identified data for the example of the UK (in billion ECU)

Transaction volume with different currencies	Identified currency pairs	Transaction sum		Transactions between two EU currencies
UKL total trading volume: 14595				
	UKL-DM	3354	---------->	3354
	UKL-USD	10350	->(proportional:(A+B)/D)-->	4948
	UKL-EUC	297	---------->	297
	UKL-NEUC	594		
DM total trading volume: 25264				
	DM-USD	14822	->(proportional:(A+C)/D)-->	10663
	DM- EUC	3493	---------->	3493
	DM-NEUC	3595		
	DM-UKL	3354	---------->	3354
EUC total trading volume: 12814				
	EUC-EUC	363	---------->	363
	EUC-NEUC			
	EUC-USD	8661	--(proportional: (B+C)/D)->	4439
	EUC-DM	3493	---------->	3493
	EUC-UKL	297	---------->	297
USD total trading volume: 49115 (D)	USD-EUC (A)	8661	---------->	4439
	USD-DM (B)	14822	---------->	10663
	USD-UKL(C)	10350	---------->	4948
	USD-NEUC	15282		
NEUC total trading volume: 20340				
			Sum of transactions between two EU currencies:	54751
			Total exchange transactions in the UK:	122126
			Share: volume of foreign exchange with EU currencies / Total volume :	0.45

Excursus 2: Checking the share calculations

We checked the shares calculated above for two countries, France and Germany.

France

For France, the Banque de France provided us with very comprehensive material about the payment flows of French current account transactions. This enabled us to calculate the foreign-exchange flows for these transactions in a 'bottom-up' manner. The development of these flows for French current account transactions in the area of the EUR-15 in the years 1989 to 1994 is shown in Table B.2.

Table B.2. Incoming and outgoing payments in various currencies in France for current account transactions with the EUR-15 Member States (in percent of total incoming and outgoing payments)

	1989	1990	1991	1992	1993	1994
Incoming						
FF	53	54	52	53	51	50
DM	8	8	9	9	9	8
LIT	3	3	3	3	2	3
UKL	4	4	4	4	4	4
PTA	1	2	2	3	2	2
Other EUR-12 currencies	2	2	2	2	2	2
Total EUR-12 currencies	71	3	72	74	70	69
Other EUR-15 currencies	2	2	2	2	2	3
USD	26	24	25	23	26	26
JPY	1	1	1	1	1	1
Total	*100*	*100*	*100*	*100*	*100*	*100*
Outgoing						
FF	49	49	49	50	49	50
DM	10	10	9	10	9	8
LIT	2	3	3	2	2	3
UKL	3	3	3	3	3	3
PTA	1	2	2	2	2	3
Other EUR-12 currencies	3	2	3	3	3	2
Total EUR-12 currencies	68	69	69	70	68	69
Other EUR-15 currencies	2	2	2	2	2	2
USD	29	28	28	27	29	28
JPY	1	1	1	1	1	1
Total	*100*	*1 00*	*100*	*100*	*100*	*100*

Source: Banque de France, calculations of BIPE.

For the year of reporting 1992 for which we have exact BIS data, Table B.2 shows that 74% of all incoming payments from current account transactions and 70% of all outgoing payments were received or paid in the currencies of the EUR-12 states. This gives us an average value of 72% that is already very close to the share of 69% that we calculated for the intra-EU transactions as a proportion of all foreign exchange transactions in France. However, it should be noted that Table B.2 contains only about 70% of all current account transactions in France – namely those within the EUR-15.

Let us now assume that the remaining 30% of the French current account transactions have only a slightly different payments structure compared with those in the EUR-15 area. Specifically, the dollar might well have a higher weighting by about 10% and the yen by about 5%. Accordingly, the EUR-15 currencies would have a lower importance. These circumstances bring us even closer to the share of 69% that we calculated.

We must also assume that the payments structure of the capital transactions corresponds approximately to that of the current account transactions.[27] By taking into account all plausibility considerations and calculations, we come very close to the share of 69% that we calculated for the intra-EU foreign exchange transactions in France – measured by the total of all French foreign exchange transactions.

[27] In justification of this assumption, we possess data from the Banque de France about the amounts of the foreign assets or liabilities. These approximately agree with the shares for the current account transactions.

Germany

The German Bundesbank calculates only the currency structure of foreign trade, i.e. not that of the entire range of current account transactions. Among the German current account transactions, the trade balance transactions almost certainly show a clear bias toward DM payments, a fact that is in many cases due to the strong position of German companies on the world market. An average share of 79% of all payments made in connection with German imports and exports in 1992 were accounted for by EUR-12 currencies (Table B.3).

This share of 79% calculated from the import and export payments of the EU currencies used is greater than our calculated value in Table B.3, which showed that other EUR-12 currencies are involved in 63% of German foreign exchange transactions. But the strong market position of German companies in the commodity trade already mentioned means that invoicing in EUR-12 currencies in the commodity trade is probably significantly above the figure in the remaining current account transactions.

In the case of current account transactions not involving commodity trade, that make up about one half of German transactions of this kind, the share of payments made with the EUR-12 currencies is certainly significantly lower. We assume that the proportion of payments made with non-EUR-12 currencies for current account transactions not involving the commodity trade is about 15% higher. So, for current account transactions we come very close to the share of 63% that we calculated for German intra-EU foreign exchange transactions. Capital transactions must have a similar currency structure to that of the current account transactions in Germany too – just like in France.

Table B.3. Incoming and outgoing payments in various currencies in Germany for trade account transactions with the rest of the world (in percent of total incoming and outgoing payments)

	1988	1989	1990	1991	1992	1993	1994
Incoming							
DM	52.6	52.8	54.3	55.4	55.9	54.1	53.2
FF	3.6	4.0	3.6	3.0	3.1	3.0	2.8
LIT	1.6	1.8	1.9	1.8	1.7	1.5	1.2
UKL	2.4	2.6	2.5	2.3	2.2	2.2	2.0
NLG	1.5	1.4	1.4	1.3	1.3	1.1	0.9
Other EUR-12 currencies	3.9	4.8	3.8	4.4	4.9	3.6	3.6
Total EUR-12 currencies	65.5	67.4	67.5	68.2	69.1	65.5	63.7
USD	21.6	22.5	21.0	20.4	18.0	19.0	19.0
JPY	2.5	2.0	1.8	2.0	1.7	2.0	1.7
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Outgoing							
DM				77.5	76.3	75.4	77.2
FF				3.3	3.6	2.9	2.9
LIT				2.0	2.1	1.6	1.7
UKL				2.3	3.3	2.7	2.4
Other EUR-12 currencies				3.3	3.5	3.2	2.8
Total EUR-12 currencies				88.4	88.8	85.8	87.0
USD				8.0	7.7	10.6	8.5
JPY				0.4	0.6	0.8	0.7
Total				*100.0*	*100.0*	*100.0*	*100.0*

Source: Deutsche Bundesbank, calculations of IFO Institute.

Result of the check of the calculated shares shown in Table 3.3 in the text

On the basis of the statistical material available to us on the currency structure in cross-border transactions in France and Germany and taking into account the plausibility considerations that we established, our calculations listed in Table 3.3 must be regarded as sufficiently well-founded.

Excursus 3: Separate calculation of exchanging notes and coins from the bottom up

We examined the trading volume in foreign notes and coins at central banks or corresponding institutions in a few European countries. The results are given in Table B.4.

Table B.4. Volume of trading in coins and notes in selected EU Member States (buys and sells of foreign coins and notes against domestic coins and notes) (in billion ECU per year or in percent growth per year)

	Belgium/ Luxembourg	Germany		Italy		France	Extrapolation to EUR-12
1986(e)							42900–63800
1989	6170	5541[1]	11000[2]	5787[3]	8000[4]	3434	57000–85000
1994	16476	6289[1]	12500[2]		12987[4]	5296	
Annual growth rate 1989–94	21.7 %	2.6 %	2.6 %		10.2 %	9.0 %	10.0 %
1995(e)	20051	6414[1]	12800[2]		14285[4]	5772	100000–150000

(e) = Estimation for 1986 and 1995 on the basis of growth rates between 1989 and 1994

[1] Only figures for holiday travel.

[2] Figures take into account other criteria for transactions in coins and notes than for holiday travel.

[3] Figures do not take into account trading in foreign coins and notes at trading institutions that are not banks.

[4] Figures take into account trading in foreign coins and notes at trading institutions that are not banks.

Source: For 1989 figures: EU Commission (1990); for 1994 figures: IFO surveys at Deutsche Bundesbank, Banque de France, Ufficio Cambi and Belgian-Luxembourg Exchange Institute.

The volume of trade in notes and coins shows great variations in the different EUR-12 states. Thus in Belgium/Luxembourg it is almost 60% above the figure for Germany. Calculated on a per capita basis, the foreign exchange trade in Belgium/Luxembourg even exceeds the figure for Germany by more than twelve-fold. However, the great increase in the BLMU is certainly a maverick that is due to the brisk cross-border traffic aimed at avoiding income tax payments on capital. In this process, cash is brought – especially from France and Germany – to Luxembourg 'by the suitcase' where the payments enjoy tax-free increases in value. The EU-wide growth rate will accordingly be significantly below the figure for Belgium/Luxembourg.

However, an average growth rate for the EUR-12 of 10% probably represents an appropriate estimate. This figure includes various developments that indicate a strong rise in cash transactions (rise of the shadow and underground economies).

A volume of trade in notes and coins of between ECU 100 and 150 billion was calculated in 1995 for all EUR-12 states on the basis of a growth rate of 10%. This range is slightly lower than the value that had been calculated in a top-down approach from the foreign exchange trade according to the BIS statistics on this trade. A comparison of Tables 3.3 and 3.4 shows that the foreign exchange trade of the non-banks amounted to a value of ECU 5,300 billion in 1995. From the data on the payment habits in the EUR-12 – according to Table 3.7 in the text – it can be seen that on average 3.5% of all transactions in 1995 were performed on a cash basis. This initially leads to a somewhat higher figure for the volume of cash trade from that obtained by the bottom-up calculation, namely about ECU 185 billion in 1995.

It can, however, be assumed that somewhat more cash payments occur in national payment traffic than in the cross-border variety. In order to take this into account, we have to reduce the national 'cash payment share' according to Table 3.7 by, say, a good 0.5% to come to the 'international cash payment share'. The result is a cash trade volume from the top-down calculation of about ECU 150 billion for 1995, exactly the upper limit of the bottom-up calculation.

In the following we will assume that the cash trade between the EUR-12 Member States amounted to the upper limit of the bottom-up calculation, i.e. to ECU 150 billion in 1995. In 1989 it is also more likely to be in the upper range of the EU estimate of 1990, namely at ECU 80 billion. Accordingly, the volume of cross-border intra-EU trade in notes and coins amounted to ECU 60 billion in 1986.

APPENDIX C

Excursus 1: Calculating fees and other bank charges as well as other foreign exchange administration cost blocks with the IFO questionnaire of winter 1995

In our questionnaire we asked about the bank charges depending on the sums of currencies exchanged. In addition, we recorded the personnel and equipment costs as well as the hedging costs – in each case in relation to the volume of foreign trade. Those who replied to the questionnaire were asked to specify in what cost category the bank charges or the personnel and hedging costs to their company were situated. A choice of five cost categories was offered in each case (<0.5%, between 0.5 and 1%, between 1 and 2%, between 2 and 4%, >4%).

From the completed questionnaires we used a microeconomic data analysis to calculate the average bank charges or the average personnel and hedging costs. The value that lay in the middle of the cost category in each case (e.g. 1.5% for the cost category between 1 and 2%) was multiplied by the respective sum exchanged.[28] The costs were then calculated as percentages of the volume of exchange transactions. The results for the bank charges are listed in Table C.1. (Table 4.6 in the text shows the results with hedging costs deducted and Table 4.8 with the personnel costs deducted.)

We also asked for each of the cost blocks for the evolution of these costs since the end of the 1980s. Only three answers to that question were offered ('not changed', 'increased', 'decreased'). The results to these questions were integrated in the estimates of unit costs in 1986 and 1989 in Table C.1.

We further assume that the average transaction sum for the companies asked was in the range between ECU 10,000 and 100,000. The resulting unit cost that we calculated on this basis is given in Table 4.3 in the text.

Table C.1. Banks' commissions and other processing fees for foreign exchange (percent of the amount exchanged)

Banks' commissions and other processing fees based on the IFO survey[1]			
Year	**1986(e)**	**1989(e)**	**1995**
Germany			0.34
France			0.40
UK			0.37
Italy			0.33
Spain			0.36
Extrapolation to EUR-12[2]	0.4	0.38	0.36

e = Estimation based on an additional question to 'banking charges' relating to the evolution of this cost block.
[1] *Source*: Survey under supervision of the IFO Institute in the mentioned EU Member States.
[2] Extrapolation with the share of each EU Member State on the total intra-EU current account volume.

[28] Only in the lowest cost category – costs of less than 0.5% – did we not select the median of the cost spread, but took a value of 0.3% as we assume that the real costs are distributed within this cost spread with a bias to the right.

Excursus 2: Survey of assumptions

Generally, our calculations of the costs of managing multiple currencies are quite robust: they are founded as far as possible on statistical data obtained from recognized institutions. Only when these are not available, did we make extrapolations. We prefer to extrapolate by using the most probable figure rather than providing intervals of the highest and the lowest figures.

The most important assumptions are the following:

(a) The foreign exchange market turnover of the EUR-12 in 1986 has been extrapolated on the basis of figures for the UK only. A reduction in the EU growth rate relative to the UK growth rate in foreign exchange turnover between 1986 and 1989 has been made because the liberalization of the UK capital market has generated extraordinarily high growth in UK turnovers.

(b) The volume of intra-EU foreign exchange transactions has been calculated with a method using as much statistical data as possible (of the transactions at different EU market-places in different currencies) and only minor estimations. These calculations have been checked 'from the bottom up' and proved to be quite exact.

(c) The size categories of current and capital account transactions have been taken from the study of the European Commission (1990). This procedure makes no complications for current account transactions, as these are based on intensive elaborations in this study and may not have changed since. The capital account transactions have been taken as a basis due to the lack of other sources for capital account transactions. We have revised the figures because those from the European Commission (1990) should have had a bias towards large transaction size.[29]

[29] We have tried to obtain figures through surveys at banks. The interview partners have informed us that they do not know the size categories of capital account transactions of their customers because they do not know whether customer orders are based on current account or capital account transactions. Moreover, orders have on average such a high volume that the banks usually presume that many transactions are the basis for one customer order.

APPENDIX D

Regression analysis of inter-firm variances

Much information is lost in the previous analysis of country averages. The aim of this section is to make the rich detail and high variance of the micro-data available for the analysis of bank charges, personnel costs and hedging costs. We are not aware of the existence of other empirical studies which use such a database. We attempt to explain cost differences among firms by focusing on their characteristics: firm size as measured by the volume of foreign transactions (exports plus imports) or exports alone, domestic sales, number of employees, the geography of their trade; by their hedging strategies and by their concern for volatility.

As scale economies are dominant causes of cost differences, a measure of size is always included in the analysis. Both cost and transaction size variables are included in log forms, and so the estimated coefficient is an elasticity. The estimated elasticities indicate to what degree larger firms have cost advantages. The lower the elasticity, the less the relative cost disadvantage of small to medium-sized firms compared with large firms. It is of interest to see if the country pattern of elasticities is related to the country ranking by *ex ante* capital market imperfection, whether bank charges for large versus small firms differ systematically between countries.

The most interesting explanatory variable included in the regressions is the direction of trade, especially the share of the firm's exports or total trade with EU countries. This information is useful to assess the magnitude of the impact of the single market on the level of transaction costs in 1994. If within-EU transaction costs are lower than non-EU transaction costs, we would expect a significant negative coefficient to the EU trade share variable. Thus, a negative and significant coefficient to this variable directly informs us whether the single market has had an impact on costs of firms in the countries analysed.

Beyond these two variables - size of foreign transactions and the EU trade share - an attempt was made to increase the explanatory power of the regressions by including other plausible variables. Thus, the more extended regressions are attempts towards a better description of the sample variance.

Two difficulties are encountered in this regression analysis. The first concerns the measure of costs. We asked firms to check whether their costs, as a percentage of total foreign transactions, fell into specific ranges: 0–0.5%, 0.5–1%, 1–2%, 2–4%, over 4%. We substituted mid-point values, 0.25%, 0.75%, 1.5%, 3% for the first four ranges and 4.5% for the top range. Since the majority of firms in most countries had costs in the lowest range, the variance of the dependent variable was limited. Second, many firms did not fill out our questionnaire completely. Thus, the problem of missing values reduces the number of observations severely with a rise in the number of regressors. While rich descriptions of a small number of firms, with high R^2, are available, they are not reported because they may not be representative of firms in the given country.

Table D.1. Bank charges and commissions versus volume of international transactions and the direction of trade: regression models (dependent variable: LOG (bank charges))

	Independent variables: (1) LOG (exports + imports)	(1a) LOG exp.	(2) EU trade share (x100)	(3) EU export share (x100)	(4) EU import share (x100)	(5) Invoice in own currency (x100)	(6) Own Sales office abroad	R^2 adj.	F	S.L.	N
Spain											
1)	-.147 (-4.3)							.085	18	.0000	186
2)	-.177 (-4.2)		-.256 (-1.0)					.137			107
3)	-.156 (-4.4)			-.079 (-.4)				.092			176
Italy											
1)	-.102 (-4.8)							.105	22	.0000	183
2)	-.106 (-4.6)		-.020 (-.1)					.097			177
3)	-.107 (-4.7)			-.069 (-.5)				.102			181
France											
1)	-.121 (-2.8)							.020	7.7	.006	328
2)	-.117 (-2.2)		-.124 (-.9)					.012	2.6	.08	250
3)	-.137 (-3.0)			-.170 (-1.6)				.025	5.0	.008	307
Germany											
1)	-.197 (-6.5)							.210	42	.0000	160
2)	-.208 (-6.5)			-.380 (-1.8)				.22	21		150
3)	-.203 (-5.8)			-.414 (-1.8)	-.180 (-.9)			.20	12		134
4)	-.192 (-5.8)			-.326 (-1.5)		.565 (2.5)		.25	17		146
5)	-.168 (-4.5)			-.378 (-1.7)		.574 (2.5)	-.211 (-1.4)	.256	13		146
UK											
1)	-.162 (-3.4)							.106			90
2)		-.112 (-3.4)						.062			160
3)	-.151 (-2.5)			-.204 (-.5)				.065			64
4)		-.086 (-2.2)		-.190 (-.7)				.026			116
5)	-.238 (-2.8)			-1.006 (-2.0)	-.774 (-2.0)			.176			37
6)	-.187 (-2.2)		-.957 (-1.6)					.099			37
7)		-.247 (-3.0)		-1.160 (-2.3)	-.80 (-2.2)			.185	4.0	.96	40

t-ratios in parentheses.
Source: Mail surveys of companies in autumn/winter 1995–96.

D.1. Bank charges

Table D.1 reports the regressions of unit banking costs on the main explanatory variables: the volume of international transactions and the share of EU trade or EU exports. The volume of trade is a significant explanator of lower costs in all countries, the coefficients are all negative and statistically significantly different from zero as indicated by t-statistics higher than 2. Of interest are the intercountry differences in the size of this coefficient. The coefficients are largest in Germany and the UK. In Germany a rise of foreign transactions of 10% will decrease unit costs by 2%. This means that in these competitive markets larger firms have greater cost advantages than in Italy or France. The larger size of the coefficient for Germany and the UK can also explain why in the previous intercountry analysis, a significant number of German and UK firms (and among them especially the smaller firms) stated that their costs had increased. This could well be the case in a competitive banking environment where large

firms can demand very low costs and banks raise charges to small and medium-sized firms in order to cover costs or maintain profit margins.

The coefficients to the EU trade or EU export share variables are all negative, indicating that intra-EU trade involves foreign exchange transactions with lower costs than trade with other areas. However, the coefficients are either not statistically significantly different from zero or only marginally significant. Hardly a t-statistic is above 2. Only in the case of Germany and the UK does one find significant coefficients or at least coefficients with low significance levels. The size of the coefficient is highest in Germany, which means that among German firms there are cost benefits to be found in EU trade. For a small number of UK firms the coefficients are even higher. A very preliminary interpretation of these results could be that in these two countries the degree of competition among banks for intra-EU business is more intense than the competition by banks for business with the rest of the world. R^2 levels (the percentage of variation of costs explained) are highest in Germany (over .20) and very low in France, where only a very small amount of the cost differences can be so explained (less than .025).

In Germany many firms invoice in DM. When firms choose this strategy, their foreign transactions are no longer in foreign currencies and the amount of foreign transactions which need to be exchanged between currencies declines. This raises unit banking charges, as expected. Exporters may only have small amounts of foreign currency to exchange and are therefore faced with higher banking charges.

D.2. Personnel costs

Table D.2 presents the regressions of personnel costs on the volume of foreign transactions, EU trade shares and a host of other variables which include firm strategies and other firm characteristics. Personnel costs are far more difficult to explain than bank charges, as the low percent of variance explained indicates. While the coefficients to the volume of trade are generally negative, indicating economies of scale, in isolation they are all insignificant, except for Italy. In Italy the size effect is significant. The larger the volume of transactions, the lower the unit costs for personnel. Yet the estimated elasticities are small, generally below 0.1. In the case of Spain, where according to Table 5.5 only 28% of responding firms have own staff for administering foreign transactions, the volume of foreign transactions in isolation has an insignificant effect on unit personnel costs and the volume of domestic sales needs to be included in the list of regressors to obtain weakly significant negative coefficients. The results suggest that in Spain it is the firm's treasury personnel which also handles foreign transactions. But when foreign transactions increase, the effect is to raise unit costs, a sign of incomplete specialization of the firm's staff. The largest and most negative coefficients for foreign transactions are to be found in the UK. Here scale effects are more important than in other countries. In France there are no significant scale effects.

The coefficients to the EU trade share or EU export shares are negative everywhere, but only significantly so in France. Here trading with EU partners is associated with lower personnel costs, perhaps due to the lower volatility of EU currencies. This interpretation is supported by the positive and weakly significant coefficients to the share of exports going to the UK and Italy, the two most volatile major European currencies in 1994.

Invoicing exports in the local currency has a negative coefficient in most regression, indicating that this is a firm strategy which is less personnel intensive. In the case of Italy these coefficients are either significant or weakly significant.

When a firm has own staff for administering foreign transactions, this increases unit personnel costs significantly in Spain and in Germany. Contrary to expectations that the efficiency of this staff should diminish costs of personnel as a percentage of the volume of foreign trade, unit costs are raised. When, as in Italy, firms state that their response to currency volatility is to increase staff, unit personnel costs rise.

Contrary to expectations that financial hedging (done in most instances with the advice of banks) is a strategy which is not personnel intensive, in the case of Italy this strategy is associated with higher unit personnel costs.

We conclude the regression analysis of personnel costs with the summary that most of the variance to be found in this variable cannot be explained. This may be due to the fact that many idiosyncratic company characteristics and strategies play a role. Thus, the phenomenon is too complicated for simple analysis. While the signs of the estimated coefficients to the volume of foreign transactions are negative, in many instances they are not significant. The negative sign of the coefficients to the EU trade share variable indicates that lower volatility of the EU currencies lowers personnel costs. However, significant influences of currency volatility on personnel costs can only be found in France. The expected efficiency of own staff for foreign exchange administration is not found. Invoicing in own currency seems to be the only company strategy which lowers personnel costs.

D.3. Hedging costs

In contrast to the previous analysis, the company variances in hedging costs are more explainable. Table D.3 presents the results of regressions. Up to 25% of the variance of these costs are explained by regressions in Italy. The volume of foreign transactions or of the volume of exports is a significant regressor in Spain, Italy and the UK, having the expected negative sign. Thus, increasing the volume of transactions lowers the unit charges for this activity by banks. Interestingly, the size of the estimated elasticity is higher in Spain and Italy than in France and Germany, where no significant effects can be found.

The effect of the EU trade or EU export share is generally negative (in Italy, France and Germany) but positive in Spain and the UK. The coefficient is significant in all countries except Spain. The estimated coefficients support the argument that hedging within EU transactions is cheaper than hedging non-EU transactions, that either banks charge lower costs for hedging EU transactions, or that such transactions are less hedged than others. For the UK, while hedging EU transactions raises costs, hedging US transactions raises them by a factor of four, as compared with the EU transactions.

Having own staff significantly lowers hedging costs in France and Germany, in one regression. This is a sign of staff efficiency, not found in the regressions of personnel costs. More important is the significant negative impact of the company strategy of invoicing in own currency as is found in Italy, France and Germany. This strategy lowers the volume of foreign trade to be hedged, therefore reducing unit hedging costs.

In France, firms which state that their concern with currency volatility is with the EU non-ERM currencies experience higher hedging costs, presumably because they do more hedging against those currencies.

Table D.2. Personnel and equipment costs: regression models (dependent variable: LOG (personnel and equipment costs))

	Independent variables:																	
	(1) LOG (exp.+ Imp.)	(1a) LOG (exp.)	(2) LOG (domestic sales)	(3) EU trade sh.(x100)	(4) EU exp. sh. (x100)	(5) UK+I exp. sh. (x100)	(6) Invoice exp. in local curr. (x100)	(7) % exp. sold by sales offices abroad	(8) Own staff (yes)	(9) Increase staff (yes)	(10) Financial hedging (yes)	(11) EU costs fall (yes)	(12) Concern with ERM volatiliy (yes)	(13) Concern with long-run volatility (yes)	R^2 adj.	F	S.L.	N
Spain																		
1)	.0334 (.7)			-.416(-1.4)											.005			79
2)	.1922 (1.1)		-.182 (-1.6)	-.284 (-.9)											.026			79
3)	.127 (11)		-.129 (-1.1)	-.290 (-.9)					.283 (1.6)						.048			76
4)	.132 (1.2)		-.133 (-.9)	-.389 (-1.2)					.349 (2.1)			-.218 (-.9)			.080	2.2	.06	72
5)	.189 (1.5)		-.154 (-1.2)	-.405 (-1.3)			.269 (1.1)		.340 (2.2)			-.263 (-1.0)			.084	2.1	.06	72
Italy																		
1)	-.062 (-2.2)														.025	4.7	.03	147
2)	-.078 (-2.5)								.151 (1.3)						.029	3.2	.045	147
3)	-.086 (-2.6)			-.122 (-.6)			-.227 -1.9				.252 (1.8)				.051	2.8	.03	135
4)	-.086 (-2.6)				.035 (.2)		-.236 -2.0				.250 (1.8)				.053			137
5)	-.102 (-3.3)						-.40[1] -1.7			.456 (2.3)	.201 (1.5)				.096	3.9	.002	137
France																		
1)	-.021 (-.5)				-.571 (-2.5)	.714 (1.6)									.046	2.2	.10	73
2)	-.032 (-.8)				-.583 (-2.6)	.706 (1.6)	-.198 (-1.1)								.05			73

Table D.2. (continued)

Germany																		
1)	-.013 (-.4)				-.156 (-.8)										0.0			124
2)	-.025 (-.7)				-.217 (-.1)		-.318 (.-1.4)								0.0			122
3)	.020 (.3)				-.283 (-.6)		-.121 (-.3)	.299 (.8)							0.0			37
4)	-.093 (-2.1)				-.084 (-.3)		-.188 (-.7)		.734 (3.7)					-.034 (-.2)	.111			86
5)	-.093 (-2.3)				-.15 (-.6)		-.246 (-1.1)		.723 (3.9)				.228 (1.6)		.128	3.8	.004	96
UK																		
1)		-.069 (-1.9)			-.059 (-.2)										.018			81
2)	-.163 (-2.4)				-.072 (-.2)										.072			48

Notes: [1] Invoice (exports plus imports)/2 in local currency.
t-ratios in parenthesis.
Source: Mail survey in the respective countries in autumn 1995 to winter 1996.

Table D.3. Hedging costs: regression models (dependent variable: LOG (hedging costs))

	Independent variables:																	
	(1) LOG (exp.+ imp.)	(1a) LOG (exp.)	(2) LOG domestic sales	(3) EU trade sh. (x100)	(4) EU exp. sh. (x100)	(5) USA exp. sh. (x100)	(6) Own staff	(7) Invoice exp. in domestic currency (x100)	(8) Financial hedging	(9) % hedge vs. non-ERM curren-cies (x100)	(10) % hedge vs. ERM-curren-cies (x100)	(11) Concern with non-ERM volatility	(12) Concern with monthly volatility	(13) Concern with US volatility	R^2 adj.	F	S.L.	N
Spain																		
1)	-.053 (-1.4)														0.0			154
2)	-.098 (-2.1)			.167 (.6)											.031			93
3)	-.063 (-1.7)				.20 (1.0)										.012			143
4)			-.117 (-1.5)	.241 (.8)											.049	3.3	.04	93
Italy																		
1)	-.107 (-3.6)														.126	13	.0005	84
2)	-.120 (-3.6)			-.067 (-.2)											.119			81
3)	-.113 (-3.6)				-.249 (-1.0)										.129	7	.002	83
4)	-.149 (-4.2)			-.139 (-.5)				-.475 [1] (-2.1)	-.390 (-1.8)				-.192 (-1.4)		.254	6	.0001	74
France																		
1)	.025 (.5)														0.0			263
2)	.002 (.03)				-.272 (-2.2)										.012	2.4	.09	244
3)	-.042 (-.7)				-.342 (-2.8)			-.423 (-3.7)							.0625	6.4	.0003	244
4)	-.0823 (-.8)				-.605 (-3.6)		-.354 (-2.7)	-.494 (-3.1)		-.195 (-1.4)		.261 (2.1)			.135	5.2	.0001	164

Table D.3. (continued)

Germany																		
1)	-.012 (-.4)				-.352 (-1.7)										.009			120
2)	-.037 (-1.1)				-.286 (-1.4)		.325 (1.8)								.029			120
3)	-.029 (-.3)				-.462 (-2.6)		-.4.10 (-3.0)	-.427 (-2.5)			-.307 (-1.4)	.127 (.6)		.167 (1.2)	.139	4.6	.0001	158
UK																		
1)	-.0043 (-.1)														0.0			130
2)		-.099 (-2.9)			.356 (1.6)										.127	5.9	.004	68
3)		-.153 (-3.4)				1.20 (2.4)									.26	9.4	.0004	49
4)		-.795 (-2.8)			.038 (2.2)	1.17 (2.5)									.32	4.3	.02	49

Notes: (1) Invoicing imports in lira; (2) Domestic sales volume; (3) Exports and imports to EU countries as a share of total volume of trade; (4) Share of exports to EU countries: (5) Share of exports to the USA; (6) Company staff for managing currency risk, yes, no; (7) Invoicing exports in domestic currency, percent; (8) Financial hedging important, yes, no; (9) Percent hedging of EU-non-ERM currencies; (10) Percent hedging of ERM currencies; (11) Concern with EU-non-ERM currency volatility, yes, no; (12) Concern with monthly volatility; (13) Concern with volatility of dollar.

Source: Mail survey in autumn 1995 to winter 1996.

APPENDIX E

Currency volatility in six EU countries

Table E.1. Germany: currency volatility of *daily* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total period
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
DM/BFR	0,0616	0,2118	0,1244
DM/DKR	0,1013	0,2909	0,1772
DM/FF	0,0908	0,2171	0,1389
DM/DM	0,0000	0,0000	0,0000
DM/DR	0,4098	0,1990	0,3628
DM/IRL	0,1672	0,4462	0,2768
DM/LIT	0,1638	0,6804	0,3885
DM/HFL	0,0284	0,0314	0,0293
DM/ESC	0,3502	0,3788	0,3586
DM/PTA	0,2465	0,5117	0,3434
DM/UKL	0,4494	0,5541	0,4815
DM/US-$	0,7727	0,7493	0,7665

Table E.2. France: currency volatility of *daily* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total period
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
FF/BFR	0,0852	0,1940	0,1261
FF/DKR	0,1057	0,2032	0,1405
FF/FF	0,0000	0,0000	0,0000
FF/DM	0,0908	0,2171	0,1389
FF/DR	0,4096	0,2230	0,3664
FF/IRL	0,1735	0,4256	0,2703
FF/LIT	0,1438	0,6235	0,3543
FF/HFL	0,0902	0,2112	0,1360
FF/ESC	0,3391	0,3613	0,3456
FF/PTA	0,2303	0,4517	0,3098
FF/UKL	0,4411	0,5295	0,4680
FF/US-$	0,7450	0,7046	0,7341

Table E.3. UK: currency volatility of *daily* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total periods
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
UKL/BFR	0,4457	0,5680	0,4837
UKL/DKR	0,4473	0,5427	0,4764
UKL/FF	0,4412	0,5295	0,4680
UKL/DM	0,4494	0,5541	0,4815
UKL/DR	0,5803	0,5100	0,5615
UKL/IRL	0,4386	0,4968	0,4559
UKL/LIT	0,4611	0,7059	0,5421
UKL/HFL	0,4466	0,5501	0,4784
UKL/ESC	0,4876	0,6063	0,5241
UKL/PTA	0,4546	0,6078	0,5028
UKL/UKL	0,0000	0,0000	0,0000
UKL/US-$	0,7771	0,7138	0,7603

Table E.4. Italy: currency volatility of *daily* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total period
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
LIT/BFRS	0,1555	0,6708	0,3814
LIT/DKR	0,1640	0,6450	0,3712
LIT/FF	0,1439	0,6235	0,3543
LIT/DM	0,1638	0,6804	0,3886
LIT/DR	0,4292	0,6365	0,4976
LIT/IRL	0,2150	0,6968	0,4138
LIT/LIT	0,0000	0,0000	0,0000
LIT/HFL	0,1627	0,6755	0,3858
LIT/ESC	0,3581	0,6665	0,4671
LIT/PTA	0,2430	0,6373	0,3969
LIT/UKL	0,4611	0,7059	0,5421
LIT/US-$	0,7313	0,8073	0,7547

Table E.5. Spain: currency volatility of *daily* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total periods
	1 January 1985 – 31 ugust 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
PTA/BFR	0,2399	0,4830	0,3279
PTA/DKR	0,2426	0,4715	0,3246
PTA/FF	0,2303	0,4517	0,3099
PTA/DM	0,2466	0,5117	0,3434
PTA/DR	0,4560	0,4924	0,4671
PTA/IRL	0,2757	0,5798	0,3872
PTA/LIT	0,2430	0,6373	0,3969
PTA/HFL	0,2447	0,5035	0,3390
PTA/ESC	0,3572	0,4314	0,3800
PTA/PTA	0,0000	0,0000	0,0000
PTA/UKL	0,4546	0,6078	0,5028
PTA/US-$	0,7276	0,7718	0,7412

Table E.6. Ireland: currency volatility of *daily* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total periods
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
IRL/BFR	0,1696	0,4627	0,2854
IRL/DKR	0,1902	0,4568	0,2919
IRL/FF	0,1735	0,4257	0,2703
IRL/DM	0,1672	0,4462	0,2768
IRL/DR	0,4352	0,4330	0,4348
IRL/IRL	0,0000	0,0000	0,0000
IRL/LIT	0,2150	0,6968	0,4138
IRL/HFL	0,1676	0,4426	0,2753
IRL/ESC	0,3616	0,5227	0,4137
IRL/PTA	0,2757	0,5798	0,3871
IRL/UKL	0,4385	0,4968	0,4559
IRL/US-$	0,7599	0,7393	0,7546

Table E.7. Germany: currency volatility of *monthly* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total period
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
DM/BFR	0,2300	0,7583	0,4512
DM/DKR	0,3648	1,1042	0,6686
DM/FF	0,4039	0,8036	0,5501
DM/DM	0,0000	0,0000	0,0000
DM/DR	2,1573	0,9753	1,9093
DM/IRL	0,8634	1,8280	1,2246
DM/LIT	0,6701	3,1912	1,8414
DM/HFL	0,0897	0,1096	0,0961
DM/ESC	1,0260	1,1449	1,0617
DM/PTA	1,0950	1,9199	1,4110
DM/UKL	1,8978	2,3809	2,0536
DM/US-$	2,9663	2,6408	2,9091

Table E.8. France: currency volatility of *monthly* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total period
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
FF/BFR	0,3397	0,6186	0,4387
FF/DKR	0,3813	0,6472	0,4736
FF/FF	0,0000	0,0000	0,0000
FF/DM	0,4037	0,8040	0,5502
FF/DR	0,0013	0,0004	0,0024
FF/IRL	0,0097	0,0003	0,0145
FF/LIT	0,6140	3,0266	1,7497
FF/HFL	0,4075	0,7703	0,5379
FF/ESC	0,9929	0,8620	0,9578
FF/PTA	1,1123	1,7947	1,3825
FF/UKL	1,8451	2,3334	2,0068
FF/US-$	2,8418	2,5219	2,7808

Table E.9. UK: currency volatility of *monthly* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total periods
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
UKL/BFR	1,8265	2,3204	1,9879
UKL/DKR	1,8366	2,4214	2,0301
UKL/FF	1,7672	2,3206	1,9497
UKL/DM	1,8970	2,3710	2,0497
UKL/DR	4,8841	4,9501	4,9224
UKL/IRL	1,5990	1,9630	1,7128
UKL/LIT	1,9061	2,4700	2,0968
UKL/HFL	1,8792	2,3616	2,0353
UKL/ESC	1,5800	2,2795	1,8156
UKL/PTA	1,6235	2,1909	1,8102
UKL/UKL	0,0000	0,0000	0,0000
UKL/US-$	2,9580	3,0109	3,0288

Table E.10. Italy: currency volatility of *monthly* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total period
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
LIT/BFR	0,6296	3,1682	1,8234
LIT/DKR	0,6819	3,1058	1,8095
LIT/FF	0,6142	3,0244	1,7487
LIT/DM	0,6698	3,1898	1,8407
LIT/DR	4,3173	4,7676	4,4974
LIT/IRL	1,0014	2,8571	1,7746
LIT/LIT	0,0000	0,0000	0,0000
LIT/HFL	0,6823	3,1837	1,8423
LIT/ESC	0,9572	2,8917	1,7854
LIT/PTA	1,0157	2,7051	1,6874
LIT/UKL	1,9676	2,4752	2,1362
LIT/US-$	2,6816	3,1951	2,9448

Table E.11. Spain: currency volatility of *monthly* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total periods
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
PTA/BFR	1,0527	2,1805	1,4980
PTA/DKR	1,1071	2,0494	1,4758
PTA/FF	0,9852	2,0599	1,4147
PTA/DM	1,0938	1,9206	1,4107
PTA/DR	4,5821	4,7433	4,6638
PTA/IRL	1,1156	2,4280	1,6191
PTA/LIT	0,9039	2,7091	1,6446
PTA/HFL	1,0903	2,1666	1,5092
PTA/ESC	0,8560	1,4585	1,1022
PTA/PTA	0,0000	0,0000	0,0000
PTA/UKL	1,6238	2,3914	1,8821
PTA/US-$	2,6399	3,3678	2,9552

Table E.12. Ireland: currency volatility of *monthly* bilateral exchange rates, 1985–95 (standard deviation of daily percentage changes)

Bilateral exchange rates	Time period		
	Sub-periods		Total periods
	1 January 1985 – 31 August 1992	1 September 1992 – 31 August 1995	January 1985 – August 1995
IRL /BFR	0,8033	1,7156	1,1476
IRL /DKR	0,8253	1,6863	1,1477
IRL/FF	0,7310	1,6410	1,0801
IRL/DM	0,8647	1,8285	1,2256
IRL/DR	4,4685	4,9559	4,6274
IRL/IRL	0,0000	0,0000	0,0000
IRL/LIT	1,0022	2,8603	1,7764
IRL/HFL	0,8555	1,7865	1,2033
IRL/ESC	1,0639	1,6183	1,2508
IRL/PTA	1,1966	2,1907	1,5648
IRL/UKL	1,6595	1,9700	1,7566
IRL/US-$	2,8556	2,6395	2,8381

Figure E.1. Germany: currency volatility (daily) in two epochs, 1985–92 and 1992–95

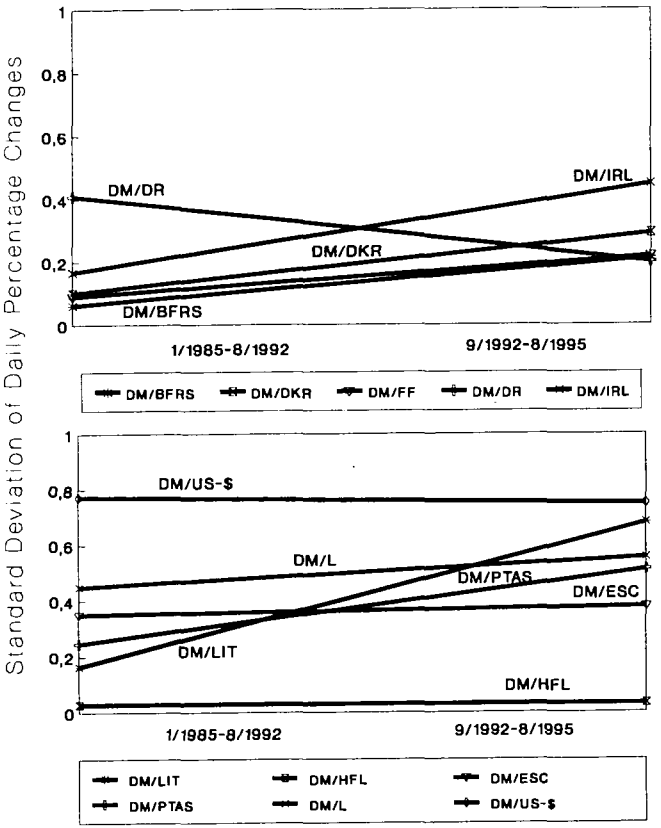


Figure E.2. France: currency volatility (daily) in two epochs, 1985–92 and 1992–95

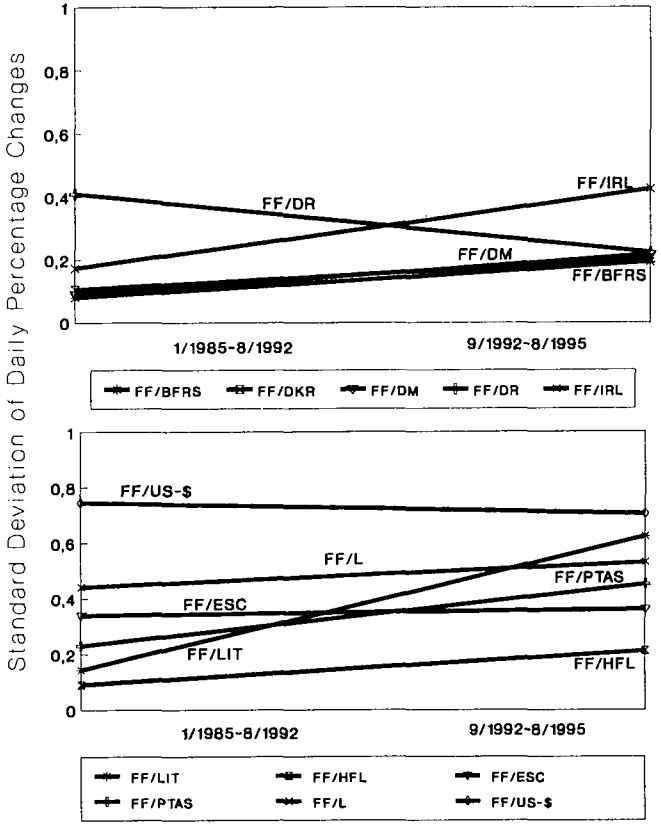


Figure E.3. UK: currency volatility (daily) in two epochs, 1985–92 and 1992–95

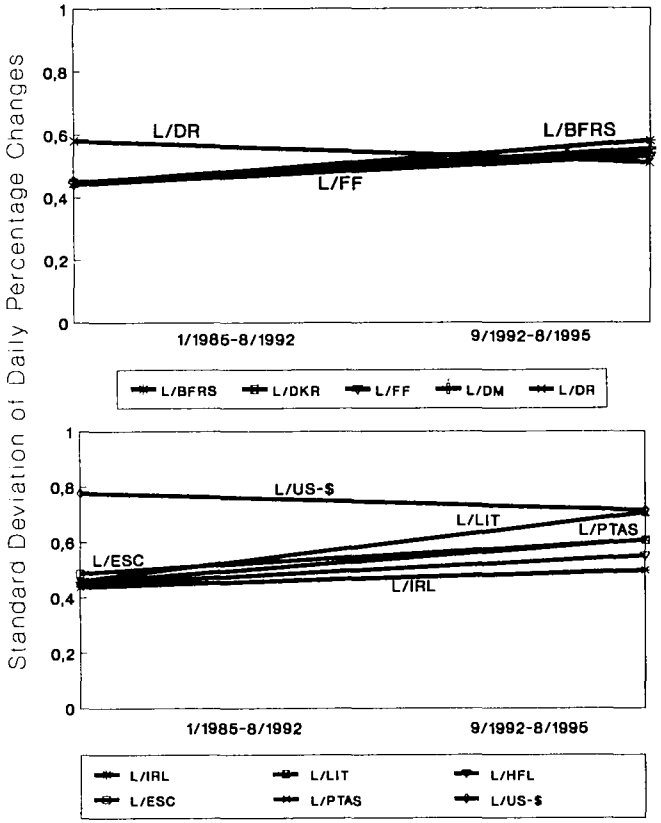


Figure E.4. Italy: currency volatility (daily) in two epochs, 1985–92 and 1992–95

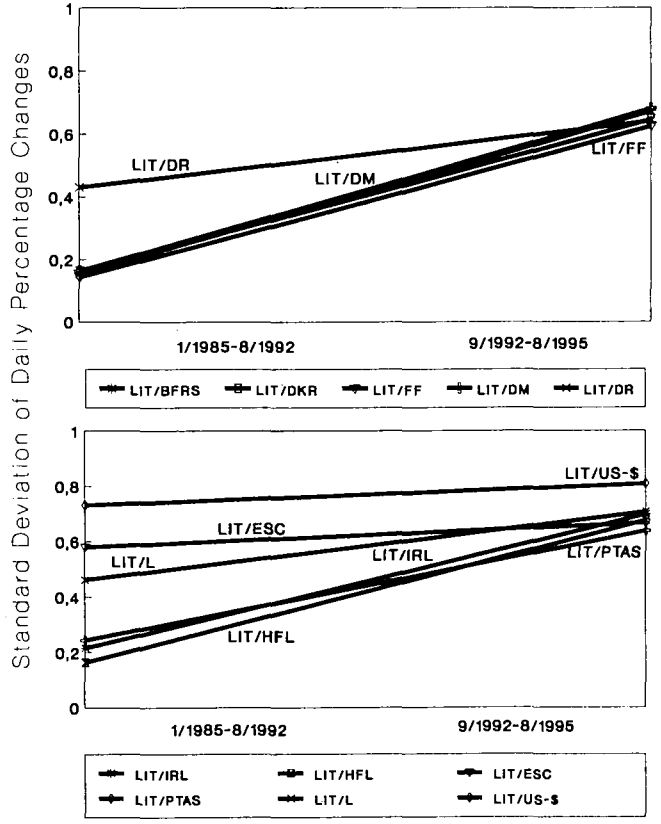


Figure E.5. Spain: currency volatility (daily) in two epochs, 1985–92 and 1992–95

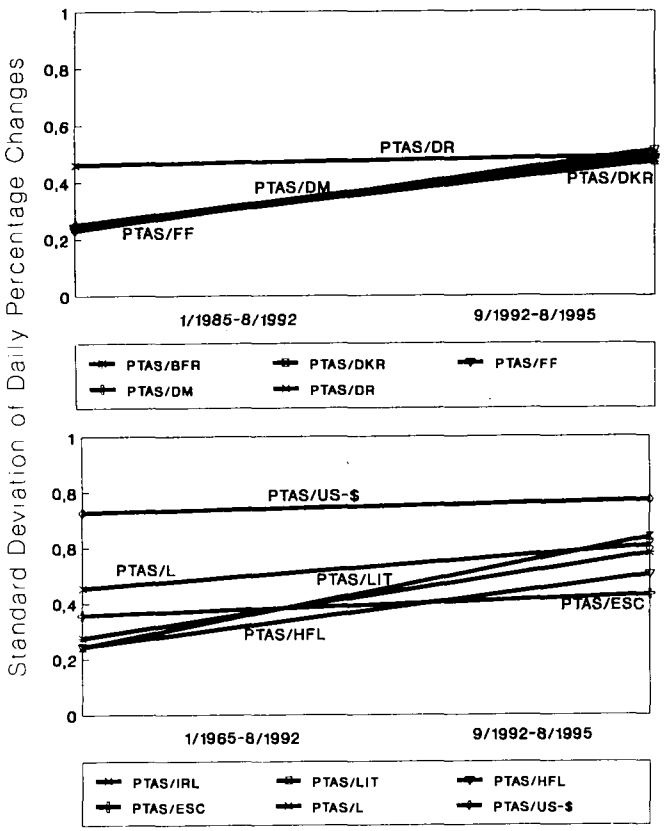


Figure E.6. Ireland: currency volatility (daily) in two epochs, 1985–92 and 1992–95

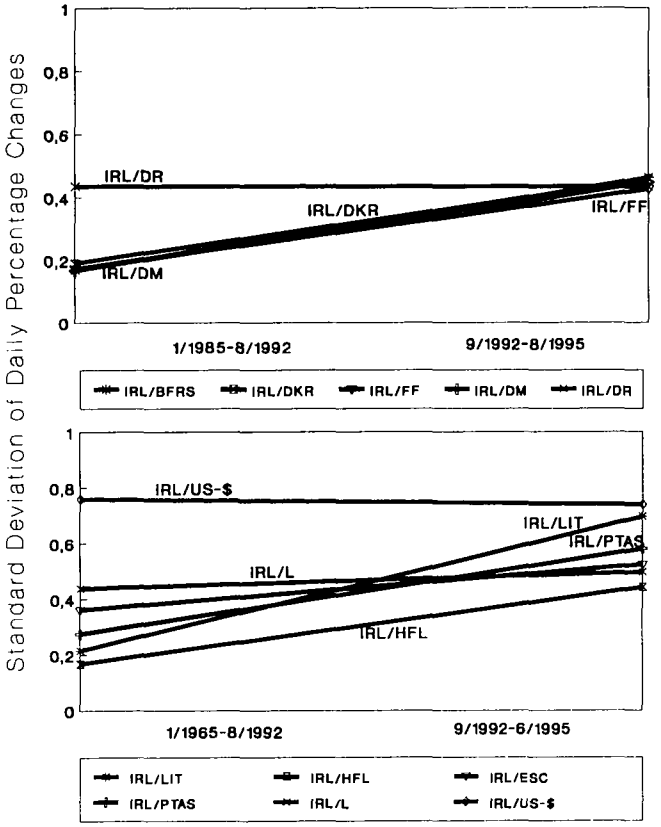


Figure E.7. Germany: currency volatility (monthly) in two epochs, 1985–92 and 1992–95

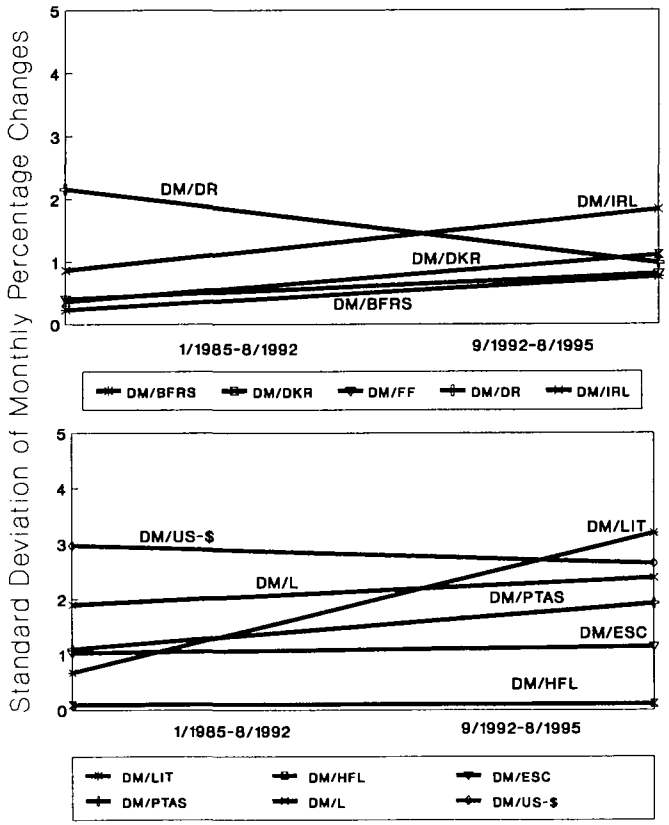


Figure E.8. France: currency volatility (monthly) in two epochs, 1985–92 and 1992–95

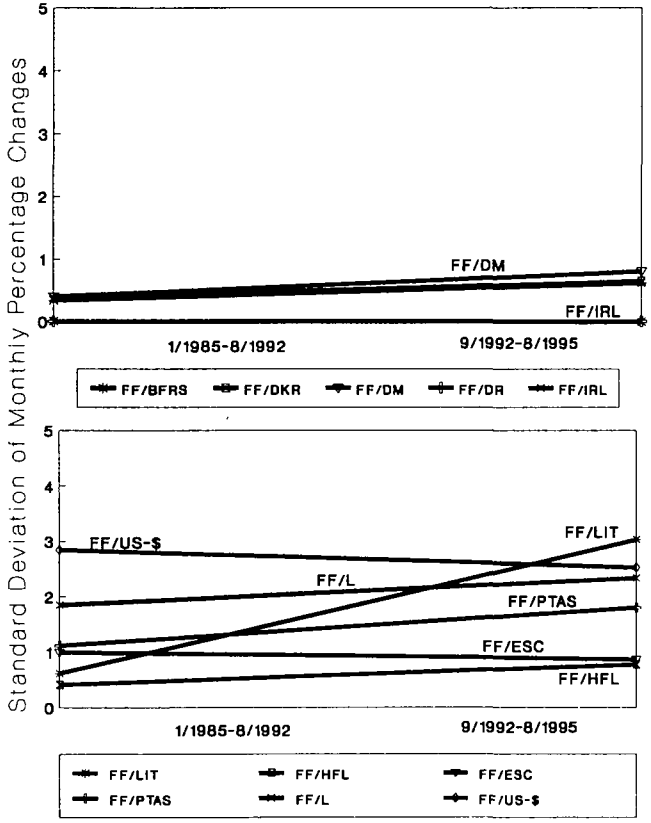


Figure E.9. UK: currency volatility (monthly) in two epochs, 1985–92 and 1992–95

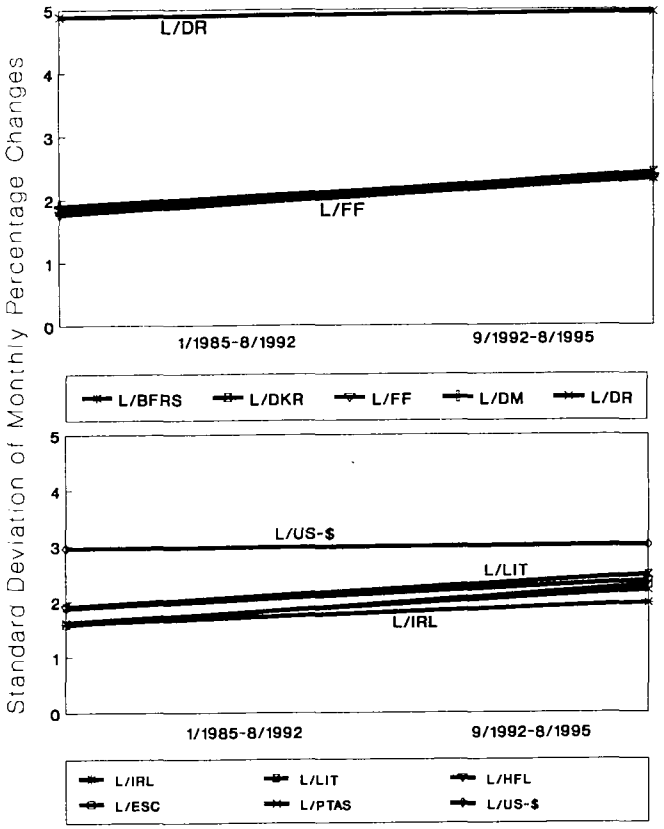


Figure E.10. Italy: currency volatility (monthly) in two epochs, 1985–92 and 1992–95

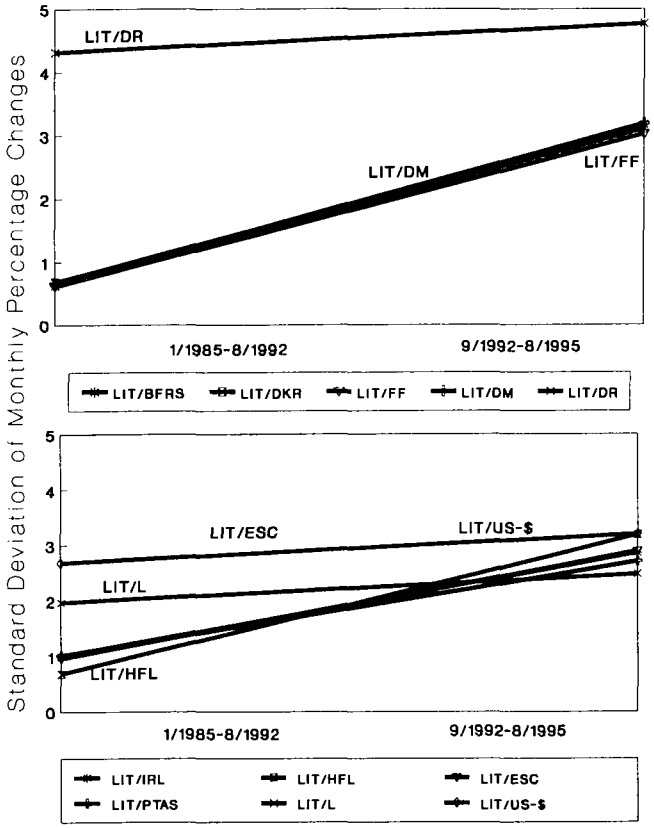


Figure E.11. Spain: currency volatility (monthly) in two epochs, 1985–92 and 1992–95

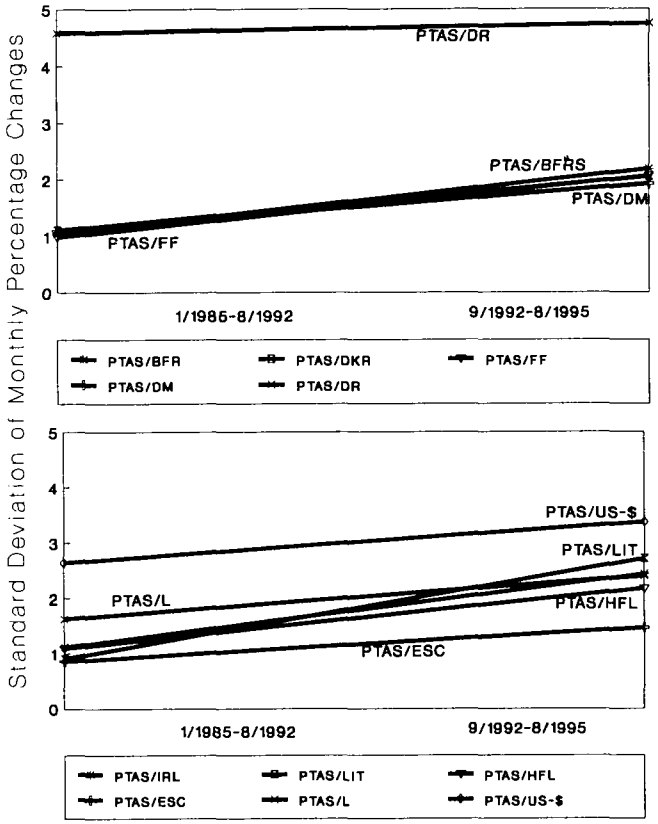
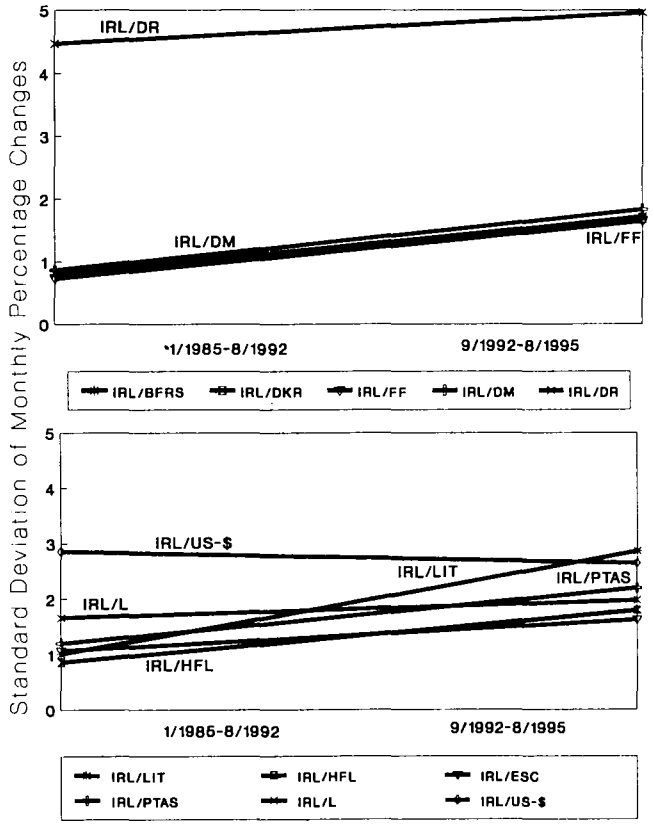


Figure E.12. Ireland: currency volatility(monthly) in two epochs, 1985–92 and 1992–95



APPENDIX F

The measurement of volatility and risk in recent financial literature

Volatility, or risk, can be defined as the size of the unexpected price changes. The usual definition of volatility is the standard deviation of returns (in the case of foreign exchange markets it is the standard deviation of the percentage rates of change of the foreign exchange rate),

$$\sigma \equiv \sqrt{E(r-\mu_r)^2}, \tag{1}$$

where r is the percentage change and μ_r is the expected change. In practice, σ is unobservable and must be estimated in the usual way, as the sample standard deviation,

$$\tilde{\sigma} = \sqrt{\frac{\sum_{t=1}^{N}(r_t - \bar{r}_t)^2}{N-1}}, \tag{2}$$

where N is the sample size. If too long a time series is used to estimate this variable, then stale, old, data contaminates this estimate. But if too few observations are employed, then the volatility measure may be dominated by outliers. Consequently, to balance these two risks, moving standard deviations are often used, fixing N at an intermediate level and dropping old observations when new observations are included in the estimate. (In this and the following pages we draw heavily from the useful study by Kroner, 1996.)

It is of interest that in financial data (exchange rates, prices of currency options, prices of stocks, etc.) volatility is not random, but appears to cluster through time, i.e. periods of volatility tend to follow periods of volatility, while periods of tranquility tend to follow periods of tranquility. This may be due to serially correlated news arrival, institutional trading rules, microstructure effects, learning by economic agents and others of the dissemination of information across markets.

One straightforward way to measure this phenomenon is to use a time series model in which the regressors are the past growth rates. For example,

$$\sigma_t = f(\delta_0 + \delta_1 s_{t-1} + \delta_2 s_{t-2} + \cdots) + \varepsilon_t \tag{3}$$

where s_t is the unexpected growth rate at time t-1 and $f(\bullet)$ is an increasing function. If the parameters δ_i are positive and declining to zero, then volatility will tend to be high when recent shocks have been large, and low when recent shocks have been small.

It is useful to compare and constrast several generally used volatility models: historical volatility, an ARMA model of squared growth rates, the GARCH model and exponential smoothing. These are all special cases of the model (3). To simplify, volatility will be defined from here on as the variance of the percentage growth rates of the foreign exchange rate, $\sigma^2 \equiv E(r^2)$, in contrast to the usual definition of the standard deviation.

(a) Historical volatility is the simplest and most generally used measure. Current volatility is measured as:

$$\tilde{\sigma}^2 = \frac{1}{N-1}\sum_{j=1}^{N} r_{t-1}^2$$

Observations in this model get either zero or equal weights. Any observation within window N gets a weight equal to *1/(N-1)* while observations outside that window get a weight of zero. The choice of N is arbitrary, but is often chosen to be equal to about 60, which corresponds to three months if daily data is used.

The forecast of volatility from this model is simply the current volatility, i.e. that which has been observed in the last N periods. If N is small enough, then this model captures volatility clustering because predicted volatility will be high if current volatility is high. Rewriting this model as:

(5) $$\tilde{\sigma}_t^2 = \tfrac{1}{N-1} r_t^2 + \tfrac{1}{N-1} r_{t-1}^2 + \cdots \tfrac{1}{N-1} r_{t-N}^2$$

and recognizing that r^2 is a measure of the size of a shock, reveals that the historical volatility model can be written as a special case of (3) above with $\delta_j = \frac{1}{N-1}$ and f(x) = x. However, the forecasts from this model do not optimally exploit the volatility clustering property in the data. To illustrate, if N is 22 days, then the forecasted volatility will be last month's variance, even though volatility might have been unusually high in the last working week. Better forecasts would recognize that last week's volatility was high, and use this to forecast higher future volatility.

(b) The ARMA (autoregressive moving average) model of squared returns can better capture the dynamic properties of volatility, in contrast. There are many models in this class, but for illustration purposes we focus on the ARMA(p,0) model, or the autoregressive model of order p:

(6) $$r_t^2 = \omega + \beta_1 r_{t-1}^2 + \cdots + \beta_p r_{t-p}^2 + \eta_t .$$

This model is a simple linear regression of current squared growth rates on lagged squared growth rates. Taking expectations of equation (6), conditional upon information available up to time *t-1*, gives this model's estimate of current volatility:

(7) $$\tilde{\sigma}_t^2 = \omega + \beta_1 r_{t-1}^2 + \cdots + \beta_p r_{t-p}^2 .$$

It is clear that this model is a generalization of the historical volatility model, reducing to the historical volatility model if p=N, ω=0, and $\beta_j = \frac{1}{N-1}$. An advantage of the ARMA model is that it is data driven. The weights in this model depend on the data, and the lag length N can be selected by statistical criteria, making it dependent upon the data as well. This model can also be written as a special case of (3); that is, it captures volatility clustering. In application, the ARMA model results in declining weights over time. More distant growth rates have less impact on current growth rates. The forecasts will eventually (at $t \to \infty$) converge to:

$$\tilde{\sigma}^2_{\infty|t} = \frac{\omega}{1-\beta_1 - \cdots - \beta_n}.$$

(c) The GARCH (generalized autoregressive conditional heteroscedasticity) model is a time series model of volatility developed by Engle (1982) and generalized by Bollerslev (1986). In this model the measure of current volatility is:

(9) $$\tilde{\sigma}^2_t = \omega + \alpha r^2_{t-1} + \beta \tilde{\sigma}^2_{t-1}.$$

The difference between the GARCH model and the ARMA model on squared growth rates is that the latter model parameterizes the dynamics of squared growth rates, while the GARCH model parameterizes the dynamics of the expected value of the squared growth rates. Consequently, the estimation methods differ. Because the dependent variable in the GARCH model is unobservable, maximum likelihood methods are used in its estimation. The GARCH model can be rewritten as:

(10) $$\tilde{\sigma}^2_t = \frac{\omega}{1-\beta} + \alpha \sum_{j=1}^{\infty} \beta^{j=1} r^2_{t-j}.$$

This equation shows that the GARCH model captures volatility clustering, because it is a special case of equation (3), with $\delta_i = \alpha\beta^{i-1}$ and f(x) = x. The GARCH model is also a special case of the ARMA model. Both define current volatility as a linear function of lagged squared growth rates, but the GARCH model restricts the weights to decay geometrically, with β as the decay parameter. The GARCH model smoothes out the weights of the ARMA model. Thus, if there is too much noise in the data to estimate the ARMA weights accurately, then the GARCH model is a solution. Analogous to the ARMA forecasts, the GARCH forecasted volatility converges to:

$$\tilde{\sigma}^2_{t+\infty|t} = \frac{\omega}{1-\alpha-\beta}$$

as the time horizon increases.

(d) The exponential smoothing model defines current volatility as:

(11a) $$\tilde{\sigma}^2_t = \alpha r^2_{t-1} + (1-\alpha)\tilde{\sigma}^2_{t-1},$$

which can be rewritten as:

(11b) $$\tilde{\sigma}^2_t = \alpha \sum_{j=1}^{\infty} (1-\alpha)^{j-1} r^2_{t-j}.$$

Note that this is but a special case of the GARCH model, in which ω = 0 and α+β=1. However, this is not a particularly good forecasting model. Substituting ω = 0 and α+β=1 into the equation (11) reveals that the forecasts from this model are:

$$\tilde{\sigma}^2_{t+k|t} = \tilde{\sigma}^2_{t|t} = r^2_t.$$

The forecasts for any time horizon are always equal to the current squared growth rates. This model over-emphasizes volatility clustering; if volatility is high today, then it will be high forever. Long-horizon forecasts from this model do not revert to any mean, making them less plausible.

In an analysis of the forecasting ability of the different models, Kroner (1996) estimated these models on the basis of daily foreign exchange rate data from January 1975 to August 1990 and the estimated models were used to construct daily out of sample 22-day volatility forecasts from September 1990 to April 1995 for four currencies (DM, Swiss franc, Japanese yen, UK pound).

The most common measure of the size of the typical forecast error is the mean absolute forecasting error (MAFE). The results are of interest: for all currencies the historical volatility model gives the highest MAFE, and for all currencies except the yen, the time-series models give the lowest MAFE.

Part Two: Country Reports of Mail Surveys and Case Studies: Country Tables

I. Country report I: Germany

I.1. Evaluation of the questionnaire

I.1.1. Representativity of the responding firms

The questionnaires were mailed to about 1,700 firms. They were answered by 418 firms, 387 of which from the sector of industry and 31 from that of services. No responses were received from the building and construction industry. The response share for the entire sample is therefore about 25%. A breakdown of the responses into the main industrial groups shows a concentration in the mechanical engineering, electrical and automobile sectors (42%). The next largest group of responses came from the processing industries (27%) (Table I.1).

In terms of the **export volumes** of the responding firms, the proportions were shifted still further toward the mechanical engineering, electrical and automobile sectors. This group of industries accounts for more than two-thirds of the exports of the responding firms, namely 63%. The contribution of the basic materials industry (28%) also increased. In contrast, the proportion of firms from the processing industry sector dropped to only 2% (Table I.1). This shows significant deviations in comparison with the structure of German exports according to official statistics. Whereas the sectors of basic materials as well as mechanical, electrical and automotive engineering are clearly over-represented in the sample of the responding firms, the processing industries are under-represented. The latter is also true for the wholesale and retail trades.

Similar concentrations and deviations compared with the official statistics were apparent in the **overall outputs** of the responding firms (Table I.2).

The mechanical engineering, electrical and automobile industries account for 68% of the **employees** of all responding firms. Around 24% of the workforce is concentrated in the basic metals industry. The proportion of employees in the other sectors is correspondingly low. Significant deviations from the official statistics were also observed here (Table I.3).

The average **export share** (exports as a percentage of total turnover from domestic production in individual sectors) of the responding firms from industry is just below 40% (has to be checked).

I.1.2. Characteristics of responding firms

Size of firm

The industrial firms participating in the questionnaires are overwhelmingly from the sector of medium and large firms. Around 42% of the responding firms employ between 100 and 500 persons, whereas 31% of the companies have a workforce of more than 500 persons. There is an above-average proportion of large firms in the basic metals industry, the iron, steel and non-ferrous metals industries as well as in the mechanical engineering, electrical and

automobile sectors (Table I.5). Firms with between 100 and 500 employees are found particularly in the food, beverages and tobacco industries and in the processing industry. Among the firms in the processing industry is also an above-average number of small firms with a workforce of between 10 and 99 persons. More than a half of the firms in the wholesale and retail trade participating in the questionnaire also fall within this size range.

Foreign trade

In terms of the degree of foreign trade, firms with export and import shares up to 24% dominate (Tables I.6 and I.7). This characteristic is particularly marked in the import sector, where 85% of the firms have import shares below 24%. The export shares of around 50% of the responding firms also lie in this range. And yet 32% of the participants have export shares of between 25 and 49%. Only 17% of the firms have export shares higher than 50%. On the import side, only 3% of the firms report such a high import share.

Distribution of imports and exports

The firms participating in the survey were asked about their regional interdependence in order to determine whether the hedging strategies they adopted to avoid foreign exchange risks under the conditions of more stable variations in exchange rates *vis-à-vis* their own currency differ from those adopted under conditions of more strongly fluctuating variations. The focus of the foreign trade relationships of the participating companies is in the EU area (EUR-12) (Table II.1). The EU as a sales market attains a share of just under 49%. The share of imports by the responding firms coming from the EU is 53%. On the export side, this degree of interdependence with the EU corresponds almost exactly to that of the total German exports for the year 1994 (49%). On the import side, the official statistics show lower values (47%) than the firms participating in the survey. The differences in the importance of the individual EU countries as buyers of German products or as suppliers correspond approximately to those for the economy as a whole (according to official statistics). The absolute levels of these proportions also differ only slightly in most cases. The Netherlands and Belgium/Luxembourg are the exceptions on the export side, and the UK on the import side.

As regards trade relations outside the EU, it is striking that the participating firms have a closer relation to the US market than is apparently the case for the economy as a whole (13% and 8% respectively).

Invoicing practices

The invoicing practices of the companies play a certain role in connection with the question of the hedging strategies adopted against risks in foreign exchange rates, in that the *direct* foreign exchange risk can be more or less automatically excluded if both export and import transactions are invoiced in DM. Receivables and accounts payable are then cleared only in one's own currency. However, invoicing in one's own currency does not eliminate the currency risk completely in all cases (see below 'Own sales offices abroad').

Exports were invoiced in DM by 98% of the firms, and imports by 93% (Table II.2a). Invoicing in dollars is practiced by 27% of the firms on the export side and 32% on the import side. For invoicing in pounds sterling, the percentages are 18% and 19% respectively. The proportion of companies who also invoice in other currencies is very high: 33% of the companies in export business and as many as 48% in import business. A role could be played

here by the fact that in recent years more and more currencies have become convertible and the position of buyers on the world market has become stronger due to increased international competition (see company interviews).

Of those firms who invoice their foreign trade transactions in DM, not all practice 100% DM invoicing. This is the case for 58% of the companies on the export side and for 41% on the import side. Another 14, or 24% of the firms, practice DM invoicing for over 90% of their transactions. DM invoicing on the export side to the tune of between 90% and 100% is practised to an above-average extent in the mechanical engineering, electrical and automobile sectors. The iron, steel and non-ferrous metals industries are below average in this respect. On the import side, the breakdown into sectors shows a somewhat different picture. Here, 100% DM invoicing is concentrated in the processing industries.

It is above all the smaller companies with between 10 and 99 employees who invoice 100% of their transactions in DM. This applies both to imports and exports. In contrast, large firms with 500 or more employees practice invoicing in DM to a far lower extent (Table II.2a).

A breakdown of the invoicing practices in line with the degree of foreign trade interdependence shows that firms with below-average export shares (up to 24%) invoice 100% of their transactions in DM very much more frequently than firms with export shares of 50% and above. A similar picture is seen for the invoicing of imports, although without such marked differences.

Own production facilities abroad

Firms were asked whether they had their own production facilities abroad because empirical evidence suggests that those who already manufacture abroad adopt different hedging strategies against foreign exchange risks than companies without foreign branches. Of those companies that took part in the survey, around 17% do possess production facilities abroad (Table II.3a). The preferred locations are in the ERM countries, where the production facilities of 74% of the firms are located. Only 34% of the companies have production facilities in the other EU countries. In contrast, 44% of the firms have also invested in the USA.

Own sales offices abroad

Information about sales offices abroad is of importance for clarifying the question as to why firms who invoice 100% of their export transactions in DM also practice financial hedging of foreign currency items. In supplying foreign markets via the company's own sales offices, the foreign exchange risk still remains within the overall corporation even if all invoicing is done in DM. Around a quarter of the companies involved in the survey, 110 in number, sell their products abroad via their own sales offices. Of these, 77% opted for the ERM countries, and 61% of the companies chose the non-ERM countries of the EU. In comparison, 46% of the companies have their own sales offices in the USA (Table II.3b).

Location of foreign exchange management abroad

Fifty-eight, or 14%, of the responding firms are subsidiaries of foreign companies. For 84% of these subsidiaries, foreign exchange management is carried out by the company headquarters abroad. These headquarters are located in Europe in 85% of cases, in the USA in 13% and in Japan in 2%.

I.1.3. Exchange rate fluctuations in Europe and business strategies

We have asked our national samples of firms how they react to exchange rate volatility (see questions III and IV of our standard questionnaire in Appendix A). The German results indicate that there is a systematic response of firms to volatility by firm size.

Business strategies against currency volatility

In question III.1 firms were asked with which business strategies they respond to currency fluctuations. We provided a large variety of responses suggested by the theoretical and empirical literature as well as our in-depth inverviews with German firms in a past study. Firms could reply that real hedging strategies were important, such as increased domestic market orientation, or the switching of exports and imports away from volatile currencies, to the relocation of production. Firms could reply that they relied on financial hedging of all types (forward contracts, factoring, insurance, options etc). Or they could respond with other in-house measures, such as netting, price changes, changing invoicing in domestic or other currencies (ECU), increasing the size of personnel for managing risks.

Firms were also asked (question IV) to what degree they actually hedge against certain currencies. And, importantly (question III.2), whether their strategies were formed in response to short-term or long-term volatility of specific currencies.

The response to question III.1 was notable because of the large differences in the types of strategies adopted by different firms. These strategies seemed to differ not so much by industry, but were rather systematically different by firm size.

Concerning real hedging:

(a) Of 223 responding firms, 71 (32%) stated that their strategy against exchange rate fluctuations was to increase their domestic market orientation. In the various size classes firms responded differently: of the 50 small firms 48% stated increased domestic market orientation, of 83 medium-sized firms 34% stated this strategy response, while only 20% of the 86 responding large firms checked this strategy response.
(b) 34% of responding small firms re-orient exports and 22% re-orient imports; 31% of medium-sized firms re-orient exports and 13% re-orient imports; 20% of large firms re-orient exports and 9% re-orient imports.
(c) Production facilities were shifted abroad by 33% of large firms, 17% of medium-sized firms and by 4% of small firms.

It is clear that real hedging strategies differ substantially by firm size, with small and medium-sized firms' strategies showing a greater anti-trade and trade-distortion response than large firms. Large firms' real hedging is found in the form of foreign investment.

Concerning financial hedging: while only 38% of small firms state that they hedged this way, and 58% of medium-sized firms, 76% of large firms respond that this is a standard strategy.

Concerning in-house measures, we do not find any evident effect of size, beyond the already stated point in Chapter 5, that small firms tend to invoice extensively in local currency compared to large firms.

Concerning the type of volatility which occasioned the strategy choice, we find that it is more the large firm which is concerned with longer run volatility and that it is the small to medium-sized firm which reacts to short to medium-term volatility.

These results for the German sample are in line with a previous study done by the IFO Institute in 1988. If they can be generalized to the rest of Europe, this suggests a remarkable story, i.e. that the single market is incomplete. In its environment, small to medium-sized firms respond with an anti-trade and trade-distorting hedging strategy which will only be eliminated by Monetary Union.

Importance of time period of exchange rate fluctuations

The question as to whether it is the shorter-term, in other words daily, monthly and quarterly, or the longer-term fluctuations in exchange rates that trigger particular defence strategies was answered by 192 firms, in other words just under half of the total surveyed. It emerges that it is above all the longer-term fluctuations that lead businesses to adopt defence strategies (Table III.2a). With a share of 52%, long-term exchange rate uncertainty is by far the most significant factor. The significance of shorter-term fluctuations in exchange rates is markedly lower. Twenty-two percent of the firms questioned feel affected by daily fluctuations in exchange rates, 28% by monthly fluctuations and 15% by quarterly fluctuations.

An exceptionally important role is played by longer-term fluctuations in exchange rates, in particular in the case of large firms with 500 or more employees (Table III.2b). For 68% of the firms in this category such fluctuations were triggers for defence strategies. Smaller businesses do not distinguish to the same extent between the influence of shorter-term and that of longer-term fluctuations in exchange rates. In the case of small firms with up to 99 employees, monthly and quarterly fluctuations in exchange rates have almost the same significance as longer-term fluctuations.

In the analysis of the answers concerning the extent of the involvement in foreign trade, differences also emerge in the significance of the different time periods of exchange rate fluctuations (Table III.2c). For firms with an export share of over 50% longer-term fluctuations in exchange rates are of relatively greater significance than for firms with lower export shares. In the subdivision into sectors this is seen to be the case in particular in the mechanical engineering, electrical and automobile industry sectors (Table III.2d).

Defence strategies are triggered in particular by fluctuations in the DM against the ERM currencies (63%), albeit closely followed by fluctuations against the US dollar (57%). In comparison the figure for currencies of other EU Member States that are not members of the ERM is much lower. The fluctuations in the DM against ERM currencies and the US dollar have a particular significance for the hedging behaviour of large firms (Table III.2b). Firms with export shares of 50% or more feel to an exceptionally high degree that they are influenced in their patterns of behaviour by fluctuations in the DM against the dollar (Table III.2c). In the case of the ERM currencies this is the case to an equal extent for all categories of export share.

In the individual main sectors fluctuations in rates against the ERM currencies in particular are of greatly varying importance (Table III.2d). Compared to the other currency areas the differences in the sectors are less marked, with the exception of the iron, steel and non-ferrous

metals industry, where 90% of firms consider themselves to be induced to take hedging measures above all by fluctuations in the rate of the DM against the US dollar.

I.1.4. Protection against exchange rate risk

Volume of financial hedging of foreign exchange denominated assets/liabilities

The question about the extent of hedging of foreign exchange denominated receivables and liabilities was only answered by 150 companies. Exchange rate risk is not fully hedged by the vast majority of firms (Table IV.1). Only 25% of the responding firms hedge fully (100%) against ERM currencies. Exchange rate risk is also fully hedged by 40% of responding firms *vis-à-vis* non-ERM EU currencies, and by 35% of firms *vis-à-vis* non-EU currencies.

In the case of the ERM and the non-ERM EU currencies about half of the firms that responded hedge only up to 66% of their total receivables and liabilities. Indeed, a third of firms only hedge up to 33%. In the case of non-EU currencies the proportion of firms in the lower hedging category falls to around 20%. In the case of this currency region the proportion of firms that hedge between 67% and 100% of their receivables and liabilities is almost 60%. In the case of medium-sized firms the proportion rises to almost 70%. A relatively large part of the exchange rate risk is thus not hedged and can, in one way or another, affect the business in real terms.

Kinds of financial hedging against exchange rate fluctuations

As a financial hedging instrument the forward exchange contract clearly dominates (Table IV.2). It is used by 80% of the total of 148 firms that responded to this question. The proportion of firms that resort to discounting of foreign exchange bills (11%), exchange rate insurance (8%), and factoring (4%) is comparatively small. Other measures, to which belong options and futures, run to a proportion of 33%. In the breakdown according to size of company it is striking that small firms are situated below this average and resort more frequently to the discounting of foreign exchange rate bills (20%).

With the forward exchange contract a relatively high degree of hedging of assets and liabilities is carried out. Eighty percent of firms which use this instrument hedge between 67% and 100%. This proportion is relatively stable for almost all sizes of business. In the breakdown according to main sectors there are similarly no discernible deviations from the overall picture. In the few cases in which other instruments are used, the degree of hedging employed by the majority of firms lies within the lower range between 1% and 33%.

The great significance of the forward exchange market for hedging transactions can be explained by the fact that everyone has access to this market and relatively small amounts (from US$ 20,000) can be dealt.

Reasons for different forms of financial hedging

In the question concerning the reasons for the choice of a particular form of hedging, firms were presented with four categories of answer which they could describe as important or unimportant. These were the costs of hedging, the payment period of accounts in foreign currencies, the technical handling of the instrument and flexibility. Further reasons could be added under the heading 'others'.

The total of 189 firms that answered this series of questions mostly gave costs as the reason for choosing a particular form of hedging (81%) (Table IV.3). Payment periods are of significance for 60% of the firms, followed by the flexibility of the hedging instrument (53%) and technical handling (45%). Of the firms in the iron, steel and non-ferrous metals industry, all, i.e. 100%, gave the costs and flexibility of the instrument as decisive factors in the choice of a particular hedging instrument. In the breakdown according to size of company it can be seen that it is above all the large firms for which the costs of the hedging instrument play an exceptionally important role.

Company-internal measures against exchange rate risk

Company-internal measures are the second most important strategy for dealing with increased exchange rate risks after financial hedging (see Table III.1). Firms have at their disposal a wide range of company-internal measures against exchange rate risks. For our survey we chose the following:

(a) netting of foreign currency assets and liabilities;
(b) changing terms of payment;
(c) pricing policy (clauses on subsequent price changes);
(d) increased invoicing in local currency;
(e) increased invoicing in ECU;
(f) increased invoicing in another international currency;
(g) increasing staff involved in risk management;
(h) others.

Two-thirds of the total of 215 firms that answered this question increase the proportion of DM invoicing (Table IV.4). Other instruments are used to a far lesser extent: netting of foreign currency assets and liabilities (36%), pricing policy (30%) and changing of terms of payment (22%). Increased invoicing in another international currency is only used by a very small number of firms (7%). Invoicing in ECU has not hitherto been a usual practice in any of the participating firms. Relatively few firms have reacted by increasing the number of staff involved in risk management.

There is a clear deviation from the overall picture in the case of the basic materials industry and the iron, steel and non-ferrous metals industry. Here the netting of foreign currency assets and liabilities plays an exceptionally important role and almost reaches or even exceeds the level of increased invoicing in local currency as an internal risk defence measure (Table IV.4d).

Netting also plays an exceptionally important role in large firms (Table IV.4b). As a company-internal risk defence instrument its use even exceeds invoicing in local currency.

I.1.5. Transaction costs and costs of hedging

The purpose of question series V was to ascertain the transaction and hedging costs of fluctuations in exchange rates.

Banks' commissions and other processing fees

The aim of question V.1 was to find out how high the banks' commissions and other processing fees are for the exchange of a foreign currency into DM. The person answering the questionnaire had to state the cost category that applied to his business: there were five cost categories (less than 0.5%, 0.5–1%, 1–2%, 2–4%, over 4%). Then for the whole question series V the results of the survey were considered in particular in terms of the size of business and, if applicable, by distinguishing between export and import structure. A breakdown according to sectors revealed no significant results with regard to question V as a whole, so that no valid statements could be derived.

The answers to question V.1 reveal a negative correlation between the cost level and the size of firm: the larger the business, the lower the bank charges.

Of the 402 firms surveyed, 209 answered this question, of which 60% quoted banks' commissions and processing fees of less than 0.5% of the amount exchanged. Of the large firms with more than 500 employees, 81% stated that they came into this cost category. In the case of medium-sized firms, with between 100 and 499 employees, only 51% came into this category. The trend of increasing transaction costs with decreasing size of company continues: only 42% of small firms with between 10 and 99 employees came into the lowest cost category. The sample of micro-firms was too small for any meaningful conclusions to be drawn.

As a counterweight to the relatively high proportion of larger businesses in the lowest cost category, the higher cost categories comprised above all smaller businesses. The cost category between 1% and 2% of the amount exchanged contains a good 17% of all the businesses that responded. Only 4% of large firms stated that they came into this cost category; the figures for small and medium-sized businesses are 29% and 21%. By virtue of their market power and their knowledge of financial events, large businesses have a cost advantage over small businesses in currency transactions in the form of lower commissions and other fees levied by banks.

When a distinction is made on the basis of export shares it emerges as expected that in the category with bank charges of less than 0.5% of the volume of foreign trade the bank charges fall as a proportion of the amount exchanged as the export share increases. Of the businesses whose fees come into this cost category, relatively few firms have an export share of less than 24% (only 53% of such firms); of the businesses with an export share of between 25% and 49% and over 50%, a markedly larger number (61% and 74%) state that they come into this lowest cost category.

The higher cost categories, from 0.5% to 1% and from 1% to 2%, accordingly include in particular businesses with a lower export share. An analysis of the import share reveals scarcely any discernible link with bank charges, not least because businesses with a very high import share only form a very small sample.

The purpose of question V.1b was to find out whether the bank charges for intra-EU transactions are lower than for extra-EU transactions. Here a clear majority (67%) of the 216 businesses that responded dismissed this theory. This result applied to all sizes of business. An even greater proportion of large businesses (72%) held the view that bank charges for intra-EU transactions are no lower than those for extra-EU transactions.

When considering the export structure it can be clearly seen that a large majority of precisely those businesses with high export activity contradicted the claim that the costs for intra-EU transactions were lower than those for extra-EU transactions. This was reported by 78% of businesses with an export share of between 25% and 49% and 67% of businesses with an export share of more than 49%.

The fees charged by the banks for intra-EU transactions hardly seem to have fallen since the end of the 1980s (question V.1b): on average 42% of the 216 businesses that responded were of the view that they had remained unchanged; 40% were even of the opinion that costs had risen. Among very small and small businesses the view was rather that transaction costs inside the EU had risen (50% and 47%), while in the case of large businesses only a third were of this opinion. A reduction in transaction costs was accordingly reported rather by large firms; overall, however, even the proportion of large firms reporting cost reductions remained small (22%).

Of the small and medium-sized businesses, 16% and 13% reported downward movements in transaction costs respectively. In those businesses that reported an unchanged level of transaction costs, no discernible trend emerged among the various sizes of business. For micro-firms no significant values could be obtained because the sample was too small, enabling no valid conclusions to be drawn.

The statement that bank charges had remained unchanged was confirmed rather by businesses with a small export share. Of businesses with higher export activity a majority reported increasing bank charges.

Costs for personnel and equipment

The aim of question V.2 was to provide information on the existence of staff dedicated to currency management and the level and trend of costs for personnel and equipment for currency management ('company-internal costs'). On average only 11% of the 245 businesses that responded confirmed the existence of such staff. The highest score is for large businesses, at 25%. The response of small firms and medium-sized firms was clearly negative, with 95% and 99% respectively stating that they have no staff specifically assigned to currency management. Surprisingly, 17% of very small businesses report having such staff. However, this is presumably an outlier, as only a very small sample is available. For large firms it is apparently more cost-effective to appoint staff for currency management than is the case for small firms.

As was to be expected, 93% or 94% of businesses with lower export activity stated that they had no staff specifically assigned to currency management. On the other hand, barely a third of businesses with more than 50% export turnover reported having such specialized staff.

The next question sought to ascertain the annual costs of personnel and equipment for the management of different currencies (question V.2b). The answers had to be expressed as a percentage of the volume of foreign trade. Here, too, it is of particular benefit to analyse the results in terms of the size of business. 245 businesses responded, of which 89% quoted costs of less than 0.5% of the volume of foreign trade. This low cost level applied in particular to the 88 large firms in this category, of which 93% stated that they came into this cost category. Of the medium-sized businesses 90% come into this category, while the figures for small businesses and very small businesses were 83% and 75% respectively. A slight trend can be

discerned here, i.e. that in comparison with smaller businesses the personnel and equipment costs borne by large businesses account for a lower percentage of their volume of foreign trade.

Personnel and equipment costs between 0.5% and 1% of the volume of foreign trade were reported by only 2% of all the businesses that responded; in the case of 6% of all businesses that responded they are between 1% and 2%. A few businesses give even higher rates, but these statements are not significant.

The subdivision of the answers according to export and import categories produces no meaningful results.

The trend in these 'company-internal' costs for intra-EU transactions experienced by a majority (53%) of the 152 businesses that responded was level. This proved to be the case for all categories of business, and was confirmed somewhat more clearly in the case of medium-sized and large businesses. A further 39% of businesses speak of increasing personnel and equipment costs. This can be accounted for partly by businesses taking on new staff for currency management, but partly also by wage rises which are outpacing the rise in foreign trade. Here too the increase in costs tends to occur to a greater extent among small and medium-sized businesses: 50% of very small firms, 41% of small and 36% of medium-sized firms report such a trend. A reduction in personnel and equipment costs is only reported by a total of only 9% of businesses. This is the case consistently across all size categories.

These 'company-internal costs' rose above all in businesses with a low export share (less than 24%), with 48% reporting such an increase. Of the businesses in the next higher export category by far the majority (66%) reported such costs to be unchanged. It is striking that a reverse trend is evident in the subdivision according to import shares, where a higher tendency towards external trade results rather in a cost increase: of businesses with import shares of at least 50%, 80% report increasing personnel costs. Only firms with an import share of less than 24% reported a reduction in such costs.

Hedging costs

In question V.3 businesses were asked to state the level of their currency hedging costs (excluding personnel and equipment). Once again five cost categories were available for the answer. In the case of a very large majority, 83% of the 177 businesses that responded, the hedging costs come out at less than 0.5% of the volume of foreign trade. It is striking that in this cost category the large firms with 81% are not represented more strongly than small and medium-sized businesses; they thus have no significant cost advantages. Medium-sized businesses, of which 85% place themselves in this cost category, even more frequently have lower costs in comparison with large businesses. Eighty-two percent of small businesses and 80% of very small businesses come into this category.

Hedging costs of between 0.5% and 1% of the volume of foreign trade are reported by 13% of large businesses and 5% of medium-sized businesses. Only where costs reach over 1% are there grounds for stating that large firms are able to hedge exchange rate risks at more favourable rates. Only 1% of large firms come into this category; in the case of small and medium-sized businesses 6% and 15% come into this category. The figures for very small businesses are not meaningful, as the sample is too small.

The trend in the costs of hedging intra-EU transactions since the end of the 1980s was described as unchanged by 55% of the 177 businesses that responded. It is striking that this opinion was only shared by 52% of large firms, while 70% of small businesses agreed. Thirty-six percent of all businesses, 37% of large businesses and 42% of medium-sized businesses reported a rise in hedging costs for intra-EU transactions. On the other hand, only 11% of large businesses, 9% of medium-sized businesses and 3% of small businesses agreed that there had been a reduction in hedging costs. Consequently only a few large firms benefit from falling hedging costs as a result of their market power and precise knowledge of financial processes. The risk involved in transactions in foreign currencies causes costs to remain consistently high.

A possible explanation for the surprising statements by large businesses that in general they were not able to benefit from falling hedging costs, lies in the fact that exchange rates scarcely changed in the period between 1987 and 1992. Large firms presumably felt increasingly safe from fluctuations in exchange rates and began to disregard strategic hedging measures. Only with the exchange rate upheavals in the autumn of 1992 did they change their behaviour. Parallel to this feeling of safety there was certainly a cost-reduction effect as a result of the single market, from which large firms in particular benefited as a result of their market power. The net result of these effects could be the lack of divergence of costs in large businesses from those in smaller businesses.

At 18%, the hedging costs have fallen more sharply for businesses with more than 49% export activity than for businesses in other export categories. At the same time 60% of businesses with over 49% import activity report rising hedging costs considerably more frequently than other import categories. This trend is presumably a consequence of the reduction since the end of the 1980s in the gap between German interest rates and those in other EU Member States: importers receive less for forward purchases of currency and exporters 'gain' in forward sales of foreign currency as a result of the lower forward discount.

Costs induced through prolonged time period for bank transfers

The aim of question V.4 was to find out how much longer a credit transfer involving a conversion from a foreign currency into the DM takes than a credit transfer wholly in DM. The foreign currencies involved were subdivided into EU and non-EU currencies. Our first finding is that credit transfers involving conversions from foreign currencies into DM take longer than those wholly in DM, regardless of whether EU or non-EU currencies are involved.

Moreover, it emerged in both subgroups that as the size of business increases, the additional time taken by credit transfers reduces. Large firms, probably because of the scale of their financial transactions, receive preferential treatment. For credit transfers in EU currencies the time difference – based on a sample of 182 businesses – was 4.2 days in the case of small businesses and 3.4 days in the case of medium-sized businesses. In the case of large businesses it is only 2.4 days. On average credit transfers involving conversions from foreign currencies into DM thus take 3.1 days longer than credit transfers wholly in DM. For very small businesses no statement can be made because the sample is too small.

In credit transfers involving a conversion between the DM and a non-EU currency longer additional processing times apply throughout for bank transfers. The average is 4.5 days compared to 3.1 days in the case of EU currencies. In small businesses the figure is 6.1 days;

medium-sized businesses report 4.7 days and large businesses speak of 3.7 days. Once again for very small businesses no representative statement can be made.

When the figures are broken down according to export shares, businesses with less than 24% export share have as expected the longest credit transfer times, both for credit transfers involving EU currencies and those involving non-EU currencies. In the case of EU currencies the figure is 3.6 days; in the case of non-EU currencies it is 5.2 days. When classified according to import activity there are probably scarcely any differences in the credit transfer time. In the category of businesses with more than 49% import activity there are only three answers.

The fact that credit transfers in EU currencies are clearly dealt with more rapidly does not mean that the market in cross-border credit transfers works particularly well. A comparison with the single market of the USA, where a credit transfer from the East Coast to the West Coast takes only one to two days longer than a transfer within a state, suggests that there is further room for improvement. Measures by the European Commission, such as the 'Draft Directive on Cross-Border Credit Transfers' (COM (96) 172) seem appropriate in the light of an average credit transfer time between EU currencies of approximately six days.

Question V.4b dealt with the change in the time taken for credit transfers, separated into EU and non-EU currencies, since the end of the 1980s, subdivided into the three headings 'unchanged', 'increased' and 'decreased'. Since the end of the 1980s the time taken has remained unchanged in the case of EU currencies, according to the majority (57%) of the 169 businesses responding. Of the large businesses 57% stated that the time taken had remained unchanged, compared to 62% of medium-sized businesses and 54% of small businesses. A significant rise in the time taken was reported only by small businesses (24%). It can be seen that the time has decreased for large businesses (39%) rather than for medium-sized and small businesses (36% and 22%). This is evidence of the influence exerted by large businesses on the banks processing the payments, as was referred to above. The sample of very small businesses was too small.

In the case of non-EU currencies a similar picture emerges: of 157 businesses that responded 57% spoke of unchanged times. This is, however, reported by a larger proportion of small and medium-sized businesses (58% and 63%), while 52% of larger businesses agreed. A rise in the time difference between credit transfers in local currency and those involving a conversion between a foreign currency and the local currency was reported by 29% of small businesses, but only by 6% of large businesses.

Such a result corresponds with the reported 42% of large firms and 13% of small businesses that experienced a reduction in the time taken. Here, too, it was mainly the large firms that benefited from more rapid processing times, while small businesses remained at a disadvantage. In the case of very small businesses the sample was too small for valid statements to be made.

In the subdivision according to export and import tendencies either no marked differences emerged in the answers or the sample was too small for significant statements to be made.

Appendix IA: German tables

Table I.1. Germany: exports of responding firms and comparison to official statistics

Sectors	Responding firms		Exports of responding firms		Exports according to official statistics	
	Number	In %[1]	Value in local currency (million)	In %[2]	Value in local currency (million)	In % of total exports
			1994		1994	
Raw materials	67	16.1	21,818	27.6	104,615	15.4
Iron, steel and non-ferrous metals	13	3.1	2,458	3.1	26,442	3.9
Mechanical engineering, electrical and automobile industries	175	42.1	49,987	63.2	334,126	49.2
Processing	111	26.7	1,909	2.4	54,906	8.1
Food, beverages and tobacco	19	4.6	1,223	1.6	22,680	3.3
Total industry	385	92.6	77,394	97.9	542,769	79.9
Services	31	7.5	1,655	2.1	136,812	20.1
Total	416	100.0	79,049	100.0	679,581	100.0

[1] Of all responding firms; [2] of total exports of all responding firms.

Table I.2. Germany: total turnover of responding firms and comparison to official statistics 1994

Sectors	Responding firms		Value of output of responding firms		Value of output[3] according to official statistics	
	Number	In %[1]	Value in local currency (million)	In %[2]	Value in local currency (million)	In % of total output[3]
Raw materials	67	16.0	51,222	25.7	419,461	21.5
Iron, steel and non-ferrous metals	13	3.1	6,079	3.1	81,207	4.2
Mechanical engineering, electrical and automobile industries	176	42.1	120,926	60.7	919,621	47.0
Processing	112	26.8	11,206	5.6	287,999	14.7
Food, beverages and tobacco	19	4.6	5,679	2.9	247,002	12.6
Total industry	387	92.6	195,112	98.0	1,955,291	100
Services	31	7.4	4,020	2.0		
Total	418	100	199,131	100		

[1] Of all responding firms; [2] of total output (turnover from domestic production) of all reponding firms; [3] gross output, not value added.

Table I.3. Germany: employees by responding firms and comparison to official statistics

Sectors	Responding firms		Employees of responding firms		Employees according to official statistics	
	Number	In %[1]	Employees	In %[2]	Employees	In %
			1994		1994	
Raw materials	67	16.0	161,290	23.6	991,133	14.4
Iron, steel and non-ferrous metals	13	3.1	12,591	1.8	249,020	3.6
Mechanical engineering, electrical and automobile industries	176	42.1	466,894	68.2	3,782,402	55.1
Processing	112	26.8	28,309	4.1	1,295,223	18.9
Food, beverages and tobacco	19	4.6	10,952	1.6	547,330	8.0
Total industry	387	92.6	680,036	99.3	6,865,108	100.0
Services	31	7.4	4,906	0.7	5,064,000	
Total	418	100.0	68,492	100.0		

[1] Of all responding firms; [2] of total employees of all responding firms.

Table I.4. Germany: comparison of export shares[1] of responding firms, and of the total economy – by sectors 1994

Export shares Sectors	Export shares of responding firms in given sectors and for all responding firms, %	Sectoral export shares and the export share of the total economy according to official statistics, %
Raw materials	42.6	24.9
Iron, steel and non-ferrous metals	40.4	32.6
Mechanical engineering, electrical and automobile industries	41.3	36.3
Processing	17.1	19.1
Food, beverages and tobacco	21.5	9.2
Total industry[2]	39.7	28.5
Services	41.2	-
Total	39.7	-

[1] Exports as a % of total turnover from domestic production of individual sectors; [2] manufacturing.

Table I.5. Characteristics of responding firms in Germany, by firm size (number of employees)

Employees / Sector	All responding firms		Micro firms: up to 10 employees		Small firms: 10 to 99 employees		Medium-sized: 100 to 499 employees		Large firms: 500 and more employees	
	No. of firms	In %	No. of firms	In %[1]	No. of firms	In %[1]	No. of firms	In %[1]	No. of firms	In %[1]
Raw materials	67	100	2	3,0	10	14.9	28	41.8	27	40.3
Iron, steel and non-ferrous metals	13	100	-	-	2	15.4	4	30.8	7	53.9
Mechanical engineering, electrical and automobile industries	176	100	-	-	41	23.3	66	37.5	69	39.2
Processing	112	100	1	0.9	42	37.5	55	49.1	14	12.5
Food, beverages and tobacco	19	100	-	-	5	26.3	10	52.6	4	21.1
Total industry	387	100	3	0.8	100	25.8	163	42.1	121	31.3
Services	31	100	9	29.0	17	54.8	3	9.7	2	6.5
Total	418	100	12	2.9	117	28.0	166	39.7	123	29.4

[1] As a % of the total number of firms in each sector (sums to 100% in each sector).

Table I.6. Characteristics of responding firms in Germany (by export share[1])

Export share / Sector	All responding firms		Up to 24%		25–49%		50–100%	
	Number of firms	In %	Number of firms	In %	Number of firms	In %	Number of firms	In %
Raw materials	67	100.0	38	56.7	17	25.4	12	17.9
Iron, steel and non-ferrous metals	13	100.0	5	38.5	5	38.5	3	23.1
Mechanical engineering, electrical and automobile industries	175	100.0	74	42.3	69	39.4	32	18.3
Processing	111	100.0	70	63.1	34	30.6	7	6.3
Food, beverages and tobacco	19	100.0	13	68.4	6	31.6	-	-
Total industry	385	100.0	200	52.0	131	34.0	54	14.0
Services	31	100.0	10	32.3	3	9.7	18	58.1
Total	416	100.0	210	50.5	134	32.2	72	17.3

[1] Exports as a % of total turnover from domestic production; [2] as a % of the number of responding firms in each sector (sums to 100% in each sector).

Table I.7. Characteristics of responding firms in Germany (by import shares[1])

Import share / Sector	All responding firms		Up to 24%		25–49%		50–100%	
	Number of firms	In %	Number of firms	In %	Number of firms	In %	Number of firms	In %
Raw materials	49	100.0	40	81.6	7	14.3	2	4.1
Iron, steel and non-ferrous metals	8	100.0	7	87.5	1	12.5	-	-
Mechanical engineering, electrical and automobile industries	124	100.0	111	89.5	11	8.9	2	1.6
Processing	87	100.0	76	87.4	9	10.3	2	2.3
Food, beverages and tobacco	13	100.0	11	84.6	2	15.4	-	-
Total industry	281	100.0	245	87.2	30	10.7	6	2.1
Services	17	100.0	11	64.7	2	11.8	4	23.5
Total	298	100.0	256	85.9	32	10.7	10	3.4

[1] Imports as a % of total turnover from domestic production; [2] as a % of the number of responding firms in each sector (sums to 100% in each sector).

Table II.1. Distribution of German exports and imports, 1994

Trade / Regions	Responding firms		According to official statistics	
	Exports	Imports	Exports	Imports
EUR-12 total, of which	48.5	53.0	49.0	47.2
Belgium/Luxembourg	4.6	6.2	6.7	6.1
France	10.6	10.7	12.0	11.1
Germany	-	-	-	-
Ireland	0.3	0.6	0.5	1.1
Italy	6.9	12.1	7.6	8.4
Netherlands	4.1	8.0	7.5	8.2
Spain	2.6	5.6	3.2	2.8
UK	7.1	3.8	8.0	6.2
Other West European countries	9.6	23.5	-	-
USA	13.0	9.9	7.9	7.3
Japan	4.1	2.8	2.6	5.6
Rest of world	-	-	-	-
Total	100.0	100.0	100.0	100.0

Note: Official statistics for the Netherlands are grouped with Belgium and Luxembourg.

Table II.2.1. Invoicing practices in Germany (exports)

Currencies / Sectors	... % of responding firms invoice in:					
	Number of responding firms	DM		US dollar	British pound	Others
		Less than 100%	100%			
Basic materials industry	67	46.2	53.9	31.3	22.4	44.8
Iron, steel and non-ferrous metals industry	13	69.2	30.8	53.9	38.5	69.2
Mechanical engineering, electrical and automobile industry	174	34.9	65.1	28.2	14.4	21.9
Processing industry	110	45.0	55.1	14.6	20.0	37.3
Food, beverages and tobacco industry	19	47.4	52.6	26.3	15.8	47.4
Total industry	383	41.5	58.5	25.6	18.3	33.2
Services	31	48.3	51.7	41.9	9.7	32.3
Total	414	42.0	58.0	26.8	17.6	33.1

Table II.2.2. Invoicing practices in Germany (imports)

Currencies / Sectors	... % of responding firms invoice in:					
	Number of responding firms	DM		US dollar	British pound	Others
		Less than 100%	100%			
Basic materials industry	48	54.6	45.5	35.4	29.2	50.0
Iron, steel and non-ferrous metals industry	10	77.8	22.2	60.0	10.0	30.0
Mechanical engineering, electrical and automobile industry	130	62.8	37.2	34.6	24.6	52.3
Processing industry	91	50.6	49.4	22.0	8.8	42.9
Food, beverages and tobacco industry	13	58.3	41.7	23.1	7.7	38.5
Total industry	292	57.9	42.1	31.2	19.2	47.6
Services	18	75.0	25.0	44.4	16.7	61.1
Total	310	58.8	41.2	31.9	19.0	48.4

Table II.3a. Characteristics of responding firms in Germany (by production facilities abroad)

Regions / Sectors	Number of responding firms	Facilities in: ERM-countries	Facilities in: EU-/non-ERM-countries	Facilities in: the USA	Facilities : elsewhere
		% of responding firms			
Basic materials industry	14	92.9	57.1	85.7	64.3
Iron, steel and non-ferrous metals industry	2	100.0	-	50.0	100.0
Mechanical engineering, electrical and automobile industries	39	71.8	25.6	43.6	56.4
Processing industry	10	60.0	60.0	10.0	40.0
Food, beverages and tobacco industry	2	100.0	-	-	50.0
Total industry	67	76.1	35.8	46.3	56.7
Services	3	33.3	-	-	100.0
Total	70	74.3	34.3	44.3	58.6

Table II.3.b. Characteristics of responding firms in Germany (by own sales offices abroad)

Regions / Sectors	Number of responding firms	Own sales offices in: ERM countries	Own sales offices in: EU /non-ERM-countries	Own sales offices in: the USA	Own sales offices: elsewhere
		% of responding firms			
Basic materials industry	20	85.0	85.0	60.0	60.0
Iron, steel and non-ferrous metals industry	3	66.7	100.0	33.3	33.3
Mechanical engineering, electrical and automobile industries	62	83.9	58.1	45.2	56.5
Processing industry	14	64.3	42.9	35.7	35.7
Food, beverages and tobacco industry	4	50.0	25.0	25.0	75.0
Total industry	103	79.6	61.2	45.6	54.4
Services	7	42.9	57.1	57.1	71.4
Total	110	77.3	60.9	46.4	55.5

Table III.1a. Germany: business strategies against exchange rate fluctuations (comparison of weighted and unweighted responses)

	Number of responding firms	Increased domestic market re-orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with a more stable exchange rate *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
All firms unweighted	223	32	27	14	21	60	46	8
Weighted with exports of responding firms	223	6	8	3	71	96	68	6
Weighted with exports acc. to official statistics	223	28	25	15	19	61	48	7
Weighted with turnover of responding firms	223	9	12	7	62	93	62	4
Weighted with turnover acc. to official statistics	223	31	22	12	22	61	47	8

Table III.1b. Germany: business strategies against exchange rate fluctuations (results according to size of company)

Number of employees	Number of responding firms	Increased domestic market re-orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with a more stable exchange rate *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
Up to 10	4	50	50	25	25	50	75	.
10 to 99	50	48	34	22	4	38	38	6
100 to 499	83	34	31	13	17	58	51	14
500 and more	86	20	17	9	34	76	44	3
All	223	32	27	14	21	60	46	8

Table III.1c. Germany: business strategies against exchange rate fluctuations (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Increased domestic market orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
Share of exports								
0–24%	96	36	33	17	20	53	43	7
25–49%	83	28	20	12	23	55	45	11
50–100%	44	30	25	11	18	84	55	5
All	223	32	27	14	21	60	46	8
Share of imports								
0–24%	145	30	28	18	19	57	45	9
25–49%	23	30	22	4	13	65	43	4
50–100%	5	20	.	.	40	100	60	.
All	173	30	26	16	18	59	45	8

Table III.1d. Germany: business strategies against exchange rate fluctuations (results according to main sectors)

	Number of responding firms	Increased domestic market orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
Basic materials industry	28	21	14	4	29	71	46	7
Iron, steel and non-ferrous metals industry	9	33	44	22	.	78	22	11
Mechanical engineering, electrical and automobile industries	98	29	22	17	24	56	47	8
Processing industry	58	43	40	12	21	57	38	10
Food, beverages and tobacco industry	12	42	8	.	8	58	67	8
Total industry	205	33	26	13	22	60	44	9
Services	18	22	33	22	6	67	61	.
All	223	32	27	14	21	60	46	8

Table III.2a. Germany: importance of time period of exchange rate fluctuations and importance of different currencies (comparison of weighted and unweighted responses)

	No. of respond-ing firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day to day	month to month	quarter to quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...others
		(as a % of total responses) [1]				...are important (as a % of total responses) [2]			
All firms unweighted	240	22	28	15	52	63	43	57	18
Weighted with exports of responding firms	240	9	10	47	84	86	79	93	65
Weighted with exports acc. to official statistics	240	20	28	14	52	59	41	61	22
Weighted with turnover of responding firms	240	14	10	42	80	84	78	88	62
Weighted with turnover acc. to official statistics	240	21	25	15	57	66	46	57	17

[1] To the column 'Business strategies prompted by ...'.
[2] To the column 'The fluctuations of local currency against ...'.

Table III. 2b. Germany: importance of time period of exchange rate fluctuations and importance of different currencies (results according to size of company)

	Number of responding firms	Business strategies prompted by...			The fluctuations of local currency against...			
		...short-term exchange rate fluctuations						
		day to day	month to month	quarter to quarter	...ERM currencies	...EU non-ERM currencies	...US dollar	...others
		(as a % of total responses) [1]			...are important (as a % of total responses) [2]			
Up to 10	5	40	40	.	60	20	60	40
10 to 99	51	22	28	28	47	29	39	22
100 to 499	92	29	30	7	64	40	53	10
500 and more	92	15	24	17	70	56	71	23
All	240	22	28	15	63	43	57	18

[1] To the column 'Business strategies prompted by ...'.
[2] To the column 'The fluctuations of local currency against ...'.

Table III. 2c. Germany: importance of time period of exchange rate fluctuations and importance of different currencies (results according to level of foreign trade relations)

	No. of respond-ing firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day to day	month to month	quarter to quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...others
		(as a % of total responses) [1]				...are important (as a % of total responses) [2]			
Share of exports									
0–24%	105	24	33	16	44	58	36	41	20
25–49%	85	16	23	4	57	69	51	65	11
50–100%	50	28	26	14	58	62	46	78	28
All	240	22	28	15	52	63	43	57	18
Share of imports									
0–24%	150	18	31	14	55	60	47	56	14
25–49%	24	23	14	23	55	71	37	62	25
50–100%	7	67	.	.	67	57	29	71	29
All	181	20	27	15	55	61	45	58	16

[1] To the column 'Business strategies prompted by ...'.
[2] To the column 'The fluctuations of local currency against ...'.

Table III.2d. Germany: importance of time period of exchange rate fluctuations and importance of different currencies (results according to main sectors)

Main sectors	No. of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate *fluctuations*			...long-term exchange rate changes				
		day to day	month to month	quarter to quarter		..ERM currencies	...EU non-ERM currencies	...US dollar	..others
		(as a % of total responses) [1]				...are important (as a % of total responses)[2]			
Basic materials industry	41	17	20	17	60	55	37	50	27
Iron, steel and non-ferrous metals industry	11	70	10	10	50	82	45	91	9
Mech. engineer., electrical and automobile industries	99	11	25	16	63	66	46	64	20
Processing industry	59	24	36	18	38	63	42	44	11
Food, beverages and tobacco industry	12	42	25	8	50	82	64	45	.
Total industry	222	21	26	16	55	65	44	56	17
Services	18	31	44	6	25	39	28	67	33
All	240	22	28	15	52	63	43	57	18

[1] To the column 'Business strategies prompted by ...'.
[2] To the column 'The fluctuations of local currency against ...'.

Table IV.1a. Germany: volume of financial hedging of foreign exchange denominated assets/liabilities (comparison of weighted and unweighted responses)

	No. of respond-ing firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%
		(as a % of total responses)[1]								
All firms unweighted	152	33	17	51	32	17	51	21	21	58
Weighted with exports of responding firms	152	18	49	33	10	60	31	6	53	41
Weighted with exports acc. to official statistics	152	32	15	52	26	14	60	18	19	61
Weighted with turnover of responding firms	152	7	51	41	13	57	30	18	46	36
Weighted with turnover acc. to official statistics	152	33	17	50	37	14	48	26	25	49

[1] For each currency region.

Table IV.1b. Germany: volume of financial hedging of foreign exchange denominated assets/liabilities (results according to size of company)

	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%
		(as a % of total responses)[1]								
10 to 99	27	29	7	64	40	.	60	20	20	60
100 to 499	51	39	17	43	33	14	52	13	17	70
500 and more	71	30	20	50	30	22	49	25	23	53
All	152	33	17	51	32	17	51	21	21	58

[1] For each currency region.

Table IV.1c. Germany: volume of financial hedging of foreign exchange denominated assets/liabilities (results according to level of foreign trade relations)

	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33%	34 to 66%	67 to 100%	to 33%	34 to 66 %	67 to 100%	to 33%	34 to 66%	67 to 100 %
		(as a % of total responses)[1]								
Share of exports										
0–24%	60	27	20	53	40	10	50	21	29	50
25–49%	53	37	17	47	26	26	48	25	25	50
50–100%	39	35	13	52	31	12	56	15	7	78
All	152	33	17	51	32	17	51	21	21	58
Share of imports										
0–24%	91	29	17	54	30	17	52	21	23	57
25–49%	19	44	11	44	50	17	33	42	8	50
50–100%	3	33	.	67	.	.	100	.	.	100
All	113	32	15	53	32	17	51	24	20	56

[1] For each currency region.

Table IV.1d. Germany: volume of financial hedging of foreign exchange denominated assets/liabilities (results according to main sectors)

Main sectors	No. of respond-ing firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%
		(as a % of total responses)[1]								
Basic materials industry	23	36	18	45	43	.	57	40	20	40
Iron, steel and non-ferrous metals ind.	8	40	20	40	.	60	40	17	33	50
Mech. engineer, electrical and automobile ind.	62	25	19	56	25	22	53	17	14	69
Processing industry	35	2	24	47	60	10	30	29	29	43
Food, beverage and tobacco industry	9	60	.	40	60	.	40	33	67	.
Total industry	137	31	19	50	34	19	47	24	21	55
Services	15	44	.	56	.	.	100	.	18	82
All	152	33	17	51	32	17	51	21	21	58

[1] For each currency region.

Table IV.2a. Germany: kinds of financial hedging against exchange rate fluctuations (comparison of weighted and unweighted responses)

	No, of res-pond-ing firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33%	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)[1]														
All firms un-weighted	148	13	8	80	69	19	12	83	.	17	58	.	42	41	18	41
Weighted with exports of resp. firms	148	6	4	90	98	2	.	100	.	.	71	.	29	93	.	6
Weighted with exports acc. to off. statistics	148	13	7	79	74	14	8	74	.	3	53	.	42	44	18	38
Weighted with turnover of resp. firms	148	7	6	87	98	2	.	100	.	.	58	.	42	93	.	6
Weighted with turnover acc. to off. statistics	148	11	6	82	62	15	10	57	.	5	48	.	48	49	13	38

[1] For each financial hedging measure.

Table IV.2b. Germany: kinds of financial hedging against exchange rate fluctuations (results according to size of company)

	No. of respond -ing firms	Exchange rate risks were hedged by...														
		...forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)[1]														
Up to 99	25	18	6	76	60	20	20	67	.	33	33	.	67	29	29	43
100 to 499	51	10	10	79	60	20	20	100	.	.	75	.	25	31	25	44
500 and more	72	13	6	81	83	17	.	100	.	.	60	.	40	50	12	38
All	148	13	8	80	69	19	12	83	.	17	58	.	42	41	18	41

[1] For each financial hedging measure.

Table IV.2c. Germany: kinds of financial hedging against exchange rate fluctuations (results according to level of foreign trade relations)

	No. of resp. firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66%	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)[1]														
Share of exports																
0–24%	60	5	9	86	25	25	50	50	.	50	50	.	50	44	25	31
25–49%	52	20	5	75	100	.	.	100	.	.	50	.	50	33	10	57
50–100%	36	12	9	78	67	33	.	100	.	.	100	.	.	50	25	25
All	148	13	8	80	69	19	12	83	.	17	58	.	42	41	18	41
Share of imports																
0–24%	92	15	10	75	62	25	12	67	.	33	40	.	60	38	19	43
25–49%	18	.	.	100	.	.	.	.	.	.	.	.	.	100	.	.
50–100%	3	33	.	67	100	.	.	100	.	.	100	.	.	.	100	.
All	113	13	8	79	70	20	10	80	.	20	50	.	50	38	21	41

[1] For each financial hedging measure.

Table IV.2d. Germany: kinds of financial hedging against exchange rate fluctuations (results according to main sectors)

Main sectors	No. of resp. firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)[1]														
Basic materials industry	24	16	5	79	100	.	.	.	.	.	.	.	100	50	10	40
Iron, steel and non-ferrous metals industry	9	12	12	75	100	.	.	.	.	.	.	.	.	25	25	50
Mechan. engineer, electrical and automobile industry	61	12	6	82	62	25	12	100	.	.	71	.	29	45	10	45
Processing industry	33	12	12	76	50	25	25	67	.	33	100	.	.	22	33	44
Food, beverages and tobacco industry	8	.	.	100	.	.	.	.	.	.	.	.	100	100	.	.
Total industry	135	12	7	81	64	21	14	80	.	20	60	.	40	41	16	43
Services	13	18	9	73	100	.	.	100	.	.	50	.	50	40	40	20
All	148	13	8	80	69	19	12	83	.	17	58	.	42	41	18	41

[1] For each financial hedging measure.

Table IV.3a. Germany: reasons for different forms of financial hedging (comparison of weighted and unweighted responses)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
All firms unweighted	189	81	60	45	53	4
Weighted with exports of responding firms	189	97	91	81	89	13
Weighted with exports acc. to official statistics	189	80	60	44	54	4
Weighted with turnover of responding firms	189	97	88	76	84	11
Weighted with turnover acc. to official statistics	189	83	60	44	54	5

Table IV.3b. Germany: reasons for different forms of financial hedging (results according to size of company)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
Up to 10	4	50	50	25	50	-
10 to 99	34	76	59	35	47	3
100 to 499	69	75	55	51	46	6
500 and more	82	90	66	45	62	4
All	189	81	60	45	53	4

Table IV.3c. Germany: reasons for different forms of financial hedging (results according to level of foreign trade relations)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
Share of exports						
0 to 24 %	84	79	52	42	51	4
25 to 49 %	65	86	63	45	49	6
50 to 100 %	40	80	72	52	65	2
All	189	81	60	45	53	4
Share of imports						
0 to 24 %	117	81	56	52	53	4
25 to 49 %	23	83	65	35	43	.
50 to 100 %	3	67	67	33	67	.
All	143	81	58	49	52	3

Table IV.3d. Germany: reasons for different forms of financial hedging (results according to main sector)

Main sectors	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
Basic materials industry	31	77	48	52	52	13
Iron, steel and non-ferrous metals industry	9	100	56	78	100	
Mechanical engineering, electrical and automobile industries	77	81	64	44	56	4
Processing industry	48	81	62	42	44	2
Food, beverages and tobacco industry	8	100	62	25	50	.
Total industry	173	82	60	46	54	5
Services	16	75	62	37	50	.
All	189	81	60	45	53	4

Table IV.4a. Germany: other measures (business–internal measures) against exchange rate risks (comparison of weighted and unweighted responses)

	Number of respond-ing firms	Netting of foreign currency assets and liabilities	Chang-ing terms of payments	Pricing policy	Incr. invoicing in local currency	Incr. invoicing in another inter-national currency	Increasing staff involved in risk manage-ment	Others
		(answering 'yes' as a % of total responses)						
All firms unweighted	215	36	22	30	65	7	5	2
Weighted with exports of responding firms	215	89	27	34	22	48	55	.
Weighted with exports acc. to official statistics	215	37	22	31	60	10	7	2
Weighted with turnover of responding firms	215	86	23	35	25	41	47	.
Weighted with turnover acc. to official statistics	215	38	22	30	64	5	4	3

Table IV.4b. Germany: other measures (business–internal measures) against exchange rate risks (results according to size of company)

	Number of responding firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Incr. invoicing in local currency	Increased invoicing in another international currency	Increasing staff involved in risk manage-ment	Others
		(answering 'yes' as a % of total responses)						
Up to 10	6	.	33	33	67	17	17	.
10 to 99	45	27	29	22	73	9	4	2
100 to 499	75	20	16	25	79	4	1	3
500 and more	89	57	24	37	49	8	8	1
All	215	36	22	30	65	7	5	2

Table IV.4c. Germany: other measures (business–internal measures) against exchange rate risks (results according to level of foreign trade relations)

	Number of respond-ing firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Incr. invoicing in local currency	Increased invoicing in another international currency	Increasing staff involved in risk management	Others
		(answering 'yes' as a % of total responses)						
Share of exports								
0–24%	95	32	20	25	73	2	.	1
5–49%	78	38	23	29	60	6	5	3
50–100%	42	43	26	40	57	19	17	2
All	215	36	22	30	65	7	5	2
Share of imports								
0–24%	140	31	21	26	69	6	4	2
25–49%	22	59	27	23	59	5	5	5
50–100%	3	33	67	33	33	33	33	.
All	165	35	23	26	67	6	4	2

Table IV.4d. Germany: other measures (business–internal measures) against exchange rate risks (results according to main sectors)

Main sectors	Number of responding firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Incr. invoicing in another inter-national currency	Increasing staff involved in risk manage-ment	Others
		(answering 'yes' as a % of total responses)						
Basic materials industry	31	55	29	32	52	3	10	3
Iron, steel and non-ferrous metals ind.	8	50	.	12	62	.	.	.
Mechan. engineer., electrical and automobile industries	90	32	20	33	64	9	3	2
Processing industry	55	31	25	25	80	2	2	.
Food, beverages and tobacco industry	11	36	18	27	64	.	.	9
Total industry	195	36	22	30	67	5	4	2
Services	20	35	25	30	50	25	20	.
All	215	36	22	30	65	7	5	2

Table V.1a. Germany: banks' commissions and other processing fees for the exchange of currencies (comparison of weighted and unweighted responses)

	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions (answering 'yes' as a % of total responses)	Since the late 1980s these costs have...		
		< 0.5 %	0.5 to 1%	1 to 2%	2 to 4%	>4 %		... not changed	...incr.	...decr.
		(as a % of total responses)						(as a % of total responses)		
All firms unweighted	216	60	20	17	1	1	33	42	40	17
Weighted with exports of respond. firms	216	96	2	2	.	.	19	32	22	46
Weighted with exports acc. to official statistics	216	59	20	17	1	.	24	32	30	13
Weighted with turnover of respond. firms	216	95	3	2	.	.	23	35	20	45
Weighted with turnover acc. to official statistics	216	60	18	16	1	1	26	34	29	14

Table V.1b. Germany: banks' commissions and other processing fees for the exchange of currencies (results according to size of company)

	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions (answering 'yes' as a % of total responses)	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%		... not changed	...incr.	...decr.
		(as a % of total responses)						(as a % of total responses)		
Up to 10	6	67	.	33	.	.	.	50	50	.
10 to 99	51	43	22	29	2	4	31	36	47	17
100 to 499	81	51	24	21	2	1	40	41	46	14
500 and more	78	81	15	4	.	.	28	46	31	22
All	216	60	20	17	1	1	33	42	40	17

Table V.1c. Germany: banks' commissions and other processing fees for the exchange of currencies (results according to level of foreign trade relations)

	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	(answering 'yes' as a % of total responses)	... not changed	...increased	...decreased
		(as a % of total responses)						(as a % of total responses)		
Share of exports										
0–24%	97	53	22	21	2	2	43	39	43	17
25–49%	76	61	19	19	.	1	22	52	33	15
50–100%	43	74	16	7	2	.	33	31	47	22
All	216	60	20	17	1	1	33	42	40	17
Share of imports										
0–24%	137	58	20	18	2	2	28	41	38	21
25–49%	24	61	17	22	.	.	37	53	32	16
50–100%	5	40	60	.	.	.	50	25	75	.
All	166	58	21	18	1	2	30	42	38	19

Table V.1d. Germany: banks' commissions and other processing fees for the exchange of currencies (results according to main sectors)

Main sectors	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4 %	(answering 'yes' as a % of total responses)	... not changed	...increased	...decreased
		(as a % of total responses)						(as a % of total responses)		
Basic materials industry	35	79	9	12	.	.	21	46	19	35
Iron, steel and non-ferrous metals industry	11	82	9	9	.	.	33	25	37	37
Mechanical engineering, electrical and automobile industry	85	56	24	17	2	.	31	48	42	9
Processing industry	54	50	21	21	2	6	36	37	49	14
Food, beverages and tobacco ind.	12	67	17	17	.	.	56	40	40	20
Total industry	197	61	19	17	2	2	32	43	40	17
Services	19	58	21	21	.	.	38	33	47	20
All	216	60	20	17	1	1	33	42	40	17

Table V.2a. Germany: costs for personnel and equipment for administering foreign currency transactions (comparison of weighted and unweighted responses)

	No. of respond-ing firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firms' foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
			(as a % of total responses)					(as a % of total responses)		
All firms unweighted	245	11	89	2	6	2	1	53	39	9
Weighted with exports of responding firms	245	79	98	.	1	.	.	38	46	15
Weighted with exports acc. to official statistics	245	14	63	1	5	1	1	33	24	5
Weighted with turnover of responding firms	245	71	97	.	3	.	.	37	44	18
Weighted with turnover acc. to official statistics	245	11	67	1	4	1	.	33	25	5

Table V.2b. Germany: costs for personnel and equipment for administering foreign currency transactions (results according to size of company)

	No. of respond-ing firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firms' foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
			(as a % of total responses)					(as a % of total responses)		
Up to 10	7	17	75	25	.	.	.	50	50	.
10 to 99	56	5	83	6	6	3	3	48	41	10
100 to 499	94	1	90	.	7	3	.	55	36	9
500 and more	88	25	93	1	6	.	.	52	39	8
All	245	11	89	2	6	2	1	53	39	9

Table V.2c. Germany: costs for personnel and equipment for administering foreign currency transactions (results according to level of foreign trade relations)

	No. of respond-ing firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firms' foreign trade)					Since the late 1980s these costs have...		
			< 0.5 %	0.5 to 1%	1 to 2%	2 to 4%	>4%	...not changed	..incr.	..decr.
			(as a % of total responses)					(as a % of total responses)		
Share of exports										
0–24%	112	7	83	4	11	3	.	44	48	8
25–49%	83	6	97	.	2	2	.	66	27	7
50–100%	50	29	89	3	6	.	3	47	41	12
All	245	11	89	2	6	2	1	53	39	9
Share of imports										
0–24%	157	8	88	3	6	2	1	56	31	12
25–49%	25	20	89	.	5	5	.	56	44	.
50–100%	7	17	60	20	20	.	.	20	80	.
All	189	10	87	3	7	2	1	55	35	10

Table V.2d. Germany: costs for personnel and equipment for administering foreign currency transactions (results according to main sectors)

Main sectors	No. of respond-ing firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firms' foreign trade)					Since the late 1980s these costs have...		
			< 0.5 %	0.5 to 1%	1 to 2%	2 to 4%	>4 %	... not changed	...incr.	...decr.
			(as a % of total responses)					(as a % of total responses)		
Basic materials industry	43	19	97	.	3	.	.	62	33	4
Iron, steel and non-ferrous metals industry	12	8	100	.	.	.	.	67	.	33
Mech. engineer, electrical and automobile ind.	95	12	91	.	6	3	.	53	42	5
Processing industry	62	2	83	7	7	2	.	46	44	10
Food, beverages and tobacco ind.	12	8	91	.	9	.	.	44	44	11
Total industry	224	10	91	2	6	2	.	53	39	8
Services	21	25	73	7	13	.	7	50	36	14
All	245	11	89	2	6	2	1	53	39	9

Table V.3a. Germany: hedging costs (comparison of weighted and unweighted responses)

	No. of responding firms	Annual costs for hedging various currencies (as a % of firms' foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
		(as a % of total responses)					(as a % of total responses)		
All firms unweighted	177	83	7	7	4	.	55	36	9
Weighted with exports of responding firms	177	69	6	.	24	.	37	25	38
Weighted with exports acc. to official statistics	177	78	8	5	4	.	48	29	7
Weighted with turnover of responding firms	177	72	8	1	18	.	37	27	36
Weighted with turnover acc. to official statistics	177	78	9	5	3	.	46	32	7

Table V.3b. Germany: hedging costs (results according to size of company)

	No. of responding firms	Annual costs for hedging various currencies (as a % of firms' foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...increased	...decreased
		(as a % of total responses)					(as a % of total responses)		
Up to 10	5	80	.	20	.	.	75	25	.
10 to 99	38	82	.	15	3	.	70	27	3
100 to 499	63	85	5	6	3	.	49	42	9
500 and more	71	81	13	1	4	.	52	37	11
All	177	83	7	7	4	.	55	36	9

Table V.3c. Germany: hedging costs (results according to level of foreign trade relations)

	No. of respond-ing firms	Annual costs for hedging various currencies (as a % of firms' foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
		(as a % of total responses)					(as a % of total responses)		
Share of exports									
0–24%	76	82	6	10	3	.	52	41	7
25–49%	64	82	10	5	3	.	65	30	5
50–100%	37	86	6	3	6	.	44	38	18
All	177	83	7	7	4	.	55	36	9
Share of imports									
0–24%	112	83	8	4	5		54	35	11
25–49%	20	89	.	11	.		67	33	.
50–100%	5	80	.	20	.		40	60	.
All	137	84	7	5	4		55	36	9

Table V.3d. Germany: hedging costs (results according to main sectors)

Main sectors	No. of respond-ing firms	Annual costs for hedging various currencies (as a % of firms' foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
		(as a % of total responses)					(as a % of total responses)		
Basic materials industry	30	90	7	.	3	.	58	29	12
Iron, steel and non-ferrous metals ind.	8	100	.	.	.	.	43	29	29
Mechan. engineer., electrical and automobile ind.	69	78	14	3	5	.	58	38	3
Processing industry	43	82	.	15	2	.	53	39	8
Food, beverages and tobacco ind.	9	78	11	11	.	.	37	50	12
Total industry	159	83	8	6	3	.	55	37	8
Services	18	83	.	11	6	.	60	27	13
All	177	83	7	7	4	.	55	36	9

Table V.4a. Germany: costs induced by prolonged time period for money transfers (comparison of weighted and unweighted responses)

	No. of respond-ing firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have ...					
				... for EU currencies ...			... for non-EU currencies ...		
				... not changed	...incr.	...decr.	...not changed	...incr.	...decr.
				(as a % of total responses)					
All firms unweighted	182	3	5	57	9	33	57	11	32
Weighted with exports of responding firms	182	2	2	40	1	59	36	1	62
Weighted with exports acc. to official statistics	182	2	3	52	10	31	50	12	26
Weighted with turnover of responding firms	182	1	2	40	1	59	32	2	66
Weighted with turnover acc. to official statistics	182	2	4	55	5	32	49	7	30

Table V.4b. Germany: costs induced by prolonged time period for money transfers (results according to size of company)

	No. of respond-ing firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have ...					
				... for EU currencies ...			... for non-EU currencies ...		
				... not changed	...incr.	...decr.	...not changed	...incr.	...decr.
				(as a % of total responses)					
Up to 10	7	3	4	40	60	.	50	50	.
10 to 99	40	4	6	54	24	22	58	29	13
100 to 499	64	3	5	62	2	36	63	4	33
500 and more	71	2	4	57	4	39	52	6	42
All	182	3	5	57	9	33	57	11	32

Table V.4c. Germany: costs induced by prolonged time period for money transfers (results according to level of foreign trade relations)

	No. of respond-ing firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have ...					
				... for EU currencies ...			... for non-EU currencies ...		
				... not changed	...incr.	...decr.	...not changed	...incr.	...decr.
				(as a % of total responses)					
Share of exports									
0–24%	77	4	5	52	15	32	51	18	31
25–49%	66	3	4	63	2	35	61	3	36
50–100%	39	3	4	57	11	31	60	14	26
All	182	3	5	57	9	33	57	11	32
Share of imports									
0–24%	113	3	5	59	9	32	55	11	35
25–49%	23	3	4	50	9	41	57	10	33
50–100%	5	2	8	60	20	20	80	20	.
All	141	3	5	58	9	33	56	11	33

Table V.4d. Germany: costs induced by prolonged time period for money transfers (results according to main sectors)

Main sectors	No. of respond-ing firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have ...					
				... for EU currencies ...			... for non-EU currencies ...		
				... not changed	...incr.	...decr.	...not changed	...incr.	...decr.
				(as a % of total responses)					
Basic materials industry	31	2	2	55	3	41	50	8	42
Iron, steel and non-ferrous metals ind.	8	2	5	57	14	29	57	14	29
Mechan. engineer, electrical and automobile ind.	72	3	5	58	5	38	56	6	37
Processing industry	45	4	6	56	16	28	57	14	29
Food, beverages and tobacco ind.	11	3	4	80	.	20	70	10	20
Total industry	167	3	5	58	8	34	56	9	35
Services	15	3	4	50	29	21	60	33	7
All	182	3	5	57	9	33	57	11	32

I.2. Evaluation of the interviews in Germany

I.2.1. General comments

The firms interviewed in Germany ranged from small (sales of DM 23 million and 95 employees) to very large (DM 85 billion and 382,000 employees). In addition to six manufacturing enterprises, four service providers were covered (insurance, banking, tourism). All companies have foreign sales, the smaller ones only via exports, the larger ones also via production facilities abroad. Regardless of size, some firms use sales representatives abroad or their own distributors.

The insurance industry is distinctly different from manufacturing. The company interviewed is the biggest insurer in Germany with 44% of its business abroad. Yet it does not consider itself multinational, but rather 'multilocal'. Subsidiaries operate in local markets, the currency of their investments must match that of their claims. Foreign exchange transactions are minimal, therefore there is very little cross-border currency flow, especially in relation to premium income. There is no hedging of exchange rate risk which is seen to be already captured in the interest rate of the assets.

I.2.2. Internationalization

Regional export and import distribution

In general, the firms direct their exports primarily to the EU (France, Benelux, UK, Italy, Spain, Austria). This is most pronounced for small and medium-sized enterprises (SMEs). The preferred non-European destinations are the USA and the Far East. For the large firms the emerging markets of Asia have been gaining in importance.

Invoicing

SMEs try to invoice their exports almost exclusively in DM. Some have sales representatives abroad who bear the exchange rate risk. The reason most frequently mentioned for invoicing in DM is market power *vis-à-vis* a given market, e.g. through the quality of the product. There is, however, a sense that the trend may be changing toward invoicing in the foreign importer's currency, especially in Asian countries, Mexico and Eastern Europe. These countries are becoming increasingly self-confident and market conscious.

Larger companies are more flexible, but the invoicing currency depends on the product, the regional export structure, and the selling practices of the industry. If the product is sold through the company's distributor network abroad, it may be preferable to shift the exchange rate risk to the sales subsidiaries abroad. This seems to be the case in the automobile industry.

The regional distribution of exports is an important determinant of invoicing practices. As the bulk of German exports goes to the EU, all EU currencies play a role in the invoicing of German companies. In practice, exports to the USA and the Far East are invoiced in US dollars. In semiconductors, for example, in which the interviewed chemical company has an export share of 80%, three-quarters of the exports are invoiced in foreign currency, of which 50% is in US dollars in accordance with the exports to the USA.

According to the firms interviewed, most of the imports are invoiced in DM. An exception seems to be the tourism firms, whose imports are invoiced in a large number of foreign currencies. In general, imports from the USA are invoiced in US dollars, as are most commodities.

Subsidiaries abroad

(a) Few of the SMEs have production facilities abroad. Those which do, are locating in low-wage, low-cost Eastern Europe (paper, auto parts). SMEs have, at best, their own sales representatives abroad.

The larger companies are globalizing more. They seek the proximity to the (large) markets (USA, Europe, Asia) and lower costs (Eastern Europe, Asia). They all mentioned that the avoidance of exchange rate risk was not the major factor, but only one among many reasons for locating production facilities abroad.

(b) According to the bank interviewed, foreign exchange management at subsidiaries of foreign firms is usually done by the head offices, most of which are located in Europe. Furthermore, large companies which are decentralized (like Siemens, BMW) leave the foreign exchange management to their subsidiaries. These must, however, follow the guidelines issued by the head office. The 1992 ERM crisis has tended to lead to some centralization (Daimler, Bosch) of foreign exchange management. Only then is foreign currency netting a viable option.

I.2.3. Company strategies in response to exchange rate fluctuations in Europe

Strategies

In general, foreign exchange considerations are secondary to the maximization of profits or market share abroad and at home. That is why several companies mentioned that it was important to keep foreign exchange management separate from the real part of the business.

None of the companies interviewed considered a reorientation toward the domestic market because of exchange rate fluctuations. Regional shifts of exports and imports are also rare. For the establishment of production facilities abroad, long-term trends in exchange rates, like a secular decline of the US dollar, may play a role (as in the case of the automobile producer). The chemical company also responded to exchange rate fluctuations in the EU by shifting some production abroad, although most of its European subsidiaries are still sales organizations rather than production plants.

Internal measures, e.g. compensatory changes in domestic prices, are part of the strategies of some SMEs which want to maintain market share in foreign markets. Large companies claimed that price changes were not an important strategy.

Postponing or accelerating payment for exchange rate reasons is not a measure commonly used in Germany, where the payment date is adhered to as part of the contract.

The companies declared that they increasingly entered strategic alliances, especially in order to access difficult markets, but not with a view to alleviating the exchange rate risk.

The preferred response of large companies to exchange rate fluctuations is financial risk management, whereas SMEs are said to fear the costs of this strategy.

Triggers of adjustment strategies

(a) Both short-term and long-term exchange rate changes are said to be responsible for adjustment strategies, simply because short-run fluctuations move around a longer-term trend. For most firms the relevant period is determined by common payment or pricing practice.

The automobile producer aims only at smoothing and stabilizing the exchange rates at which foreign transactions are converted, so fluctuations have a minimal effect on the real side of the business. This does not mean active hedging on a daily basis, but rather that real transactions are accompanied by two-, four-, six-, eight-month hedges on a continuing basis. The chemical company emphasized the month-to-month exchange rate changes which are monitored on a daily basis, in order to make adjustments to the hedging strategy. Positions may be cancelled at any time and replaced by others. They also make use of dynamic hedging programmes.

Although the longest possible contracts are for seven years, even 12-month forward contracts are said to be rare. Small firms usually take three-month hedges corresponding to the common payment period of 90 days. Tourism firms hedge for the length of a catalogue term (nine months) for which prices are fixed. Their forward contracts cover three to nine months, and are normally initiated monthly.

(b) Currencies whose fluctuations are especially important for the German firms interviewed are weak ERM currencies (peseta), non-ERM EU currencies (lira, pound sterling), other European currencies (Swedish krona), the US dollar, and the yen.

I.2.4. Financial hedging

Hedging of foreign currency claims and liabilities

Because two of the three small production firms invoice only in DM, hedging is no issue for them. The third small producer does not hedge any of its foreign exchange claims in ERM currencies, but hedges two-thirds of all non-ERM currency claims. The small tourist operator hedges 80% of all foreign exchange liabilities, regardless of whether EU or non-EU currencies are involved. According to the bank, the smaller clients hedge about 50% of all European currency risks. This ratio is a little higher for US dollar claims and liabilities.

Larger companies, again according to the bank, see no need for hedging most ERM currencies. Since 1992, however, the exchange risk of the currencies which left the ERM - pound sterling and, especially, the lira - has been considered very high. For these, other EU and the non-EU currencies, about 75% of the positions, are hedged. This is confirmed by the large companies interviewed, although one hedges as much as 80% of non-EU currency positions. For the chemical company, the average hedging ratio is about 30%.

Hedging instruments

Regarding the instruments used, hedging in the forward markets is by far the most popular method, accounting for about 90% of all operations of the smaller firms. One of the smaller firms interviewed follows the 'one-third' rule, however: one-third open, one-third forward, one-third options.

According to the bank, the smaller firms prefer forward operations because they prefer not to pay up-front for the option premiums.

Foreign currency drafts were mentioned only once, as was factoring, which is considered too expensive.

The large firms, too, divide their operations between forward contracts and options, normally in a ratio of 75% to 25%, according to the bank. For the automobile producer the ratio is 90/10; they use forward contracts at the top of an exchange rate cycle and options at the bottom. The electrical equipment maker claims to use almost exclusively forward contracts. The chemical company has increasingly been using options which are preferred to forward contracts 70% to 30%; they use forward contracts as a supplementary instrument when the option volume is very high. Their increasing use of options during the past five years is due to the installation of modern computer programs. They also make frequent use of dynamic hedging and occasionally of currency swaps.

Reasons for the choice of instrument

The choice of instrument depends on costs, not so much in terms of bank fees or buy-sell spreads, but rather in terms of the implicit costs like interest rates or premiums. Small firms, however, prefer forward contracts because they appear to be cheaper (no up-front costs) and are easier to understand than options. Classical options seem to have been advancing.

Maturities of the contract and flexibility of the instrument are also major determinants. Technical handling is a less important consideration, as it is often (especially by the smaller firms) left to the bank. But the bank mentioned the paperwork involved, which makes the technical handling complicated.

Measures besides financial hedging

The measure most frequently mentioned by the large firms is netting. This is becoming more important with increasing centralization of foreign exchange operations. Where firms are decentralized, claims and liabilities in a given foreign currency arise in different parts of the business and the ability to net is minimal. The multinational companies have foreign exchange accounts in almost every country, permitting netting there.

Increased invoicing in DM does not seem to be a common response (only one mention). Hardly any firm in Germany invoices in ECU, unless it has contracts with one or more EU governments, which may be true of defence contractors. According to the bank, there is in fact an increasing trend towards invoicing in foreign currencies, including those of emerging markets.

As a rule, risk management staff has not been increased (lean management!), but responsibility for managing the exchange risk is sometimes shared by more people than before. Central offices issue exchange risk management guidelines to their subsidiaries.

The electrical equipment-making firm is an exception in that it has increased its risk management staff. This company also mentioned changes in agreed payment dates, as well as the occasional reliance on price change clauses.

Pricing policy does seem to play a role when the DM appreciates. In order not to lose market share, DM prices may be lowered to offset, at least in part, the appreciation. One firm which exports primarily to the UK, whose currency fluctuates a lot, makes special pricing arrangements with the importer, in fact fixing a maximum price in pound sterling at the beginning of each year. If the pound appreciates, pushing the product price beyond the ceiling, the exporter absorbs the loss. If the pound depreciates, the foreign importer benefits from the windfall gain.

I.2.5. Transaction and hedging costs

Bank commissions and service charges

There are generally no commissions for currency exchange. Service charges are, as a rule, under 0.5%. Service charges are a fixed amount and thus fall in relative terms as the size of the transaction increases. Bank charges are marginal for large firms whose risk managers know the spreads as well as the bank. The bank therefore profits only from the large volume and from other bank business with the company (loans, etc.). Costs are higher for small firms which have no alternative. Service charges are levied on cash transactions (1–2%).

According to the firms interviewed, there is no difference between the costs of intra- and extra-EU transactions. Since the late 1980s, these costs were mostly considered to have remained unchanged. Some thought they had declined, mainly for technical reasons. The multinational company, which has foreign currency accounts in all countries and therefore low exchange costs at the centre, stressed that exchange costs mostly depended on the organization of payment flows. They emphasized that their costs have declined due to better organization in this area, not due to the single market.

Foreign currency management staff

The bigger firms have special staff for risk management. For example, at the chemical company three out of 15 people employed in the treasury department deal with risk management, of which 60% is foreign exchange risk management. The automobile company also has a small foreign exchange management staff. They have developed their own foreign exchange model which is used in decisions on hedging strategy. In small firms, foreign exchange management is a small part of the responsibility of one or two people who employ the services of their house bank.

Costs incurred for personnel and equipment used in currency management are difficult to determine, but are uniformly considered to be below 0.5% of the foreign trade volume.

Hedging costs (excluding personnel and equipment)

Annual costs for hedging the foreign exchange risk are believed to be below 0.5% of foreign transactions for most firms surveyed. Only the large electrical equipment maker put them at 2-4%.

Time needed for currency transfers

The small firms reported that cross-border currency transfers into/from other EU currencies take longer (5–20 bank days) than domestic money transfers (two days), for a rough average difference of ten bank days. The time difference is said by one firm to have risen since the end of the 1980s, mentioning Austria as a case in point. Since it became a member of the EU, the time of a currency transfer is said to have doubled in accordance with EU practices! This is seen as the result of tacit agreements among banks.

If the SWIFT system is used, there is no difference between domestic and foreign transfers, all taking one day. Only where time differences exist, does the time needed rise by one day.

In general, the time period for a transfer is said not to have changed.

I.2.6. Effects of the single market

The single European market has intensified competition in product and financial markets.

The banks think that their shrinking margins are a result of greater competition from foreign banks. Margins and interest rate differentials have declined (from 3 to 0.2 basis points in the dollar business). Margins earned in forward transactions have halved.

The firms, on the other hand, claim that the declining costs are due to their greater sophistication. Since the larger firms are tuned into the market as well as the banks, they have more negotiating leverage. Both factors seem to play a role.

Small firms will not switch to another (European) bank because of the house bank relationship which is based on mutual trust and which also confers certain privileges on the firm (advice, lower transaction costs, better loan conditions).

In 1994 and 1995 small and medium-sized firms became more active in foreign exchange transactions. This cannot be divorced, however, from the appreciation of the DM following the exchange market turbulences of 1992. For the banks this implies increased demand for consultations. Each treasury staff member is responsible for 10–20 clients who must be called several times a day. Costs for the banks have risen. Costs to the big clients, however, have fallen; for the small clients, they have not.

Most companies surveyed would welcome a single European currency, although they consider EMU to have far-reaching consequences of a mixed nature. EMU will be very costly for business as balance sheets will have to be re-evaluated, computer programs changed, etc. The same is true of the banks. Companies expect those currencies with the greatest fluctuations (lira, peseta, pound sterling) to remain outside EMU, however, while those joining EMU are already the most stable, requiring no hedging. For the chemical company, the latter currencies are involved in only 10–15% of total transactions.

The primary reasons for supporting EMU on schedule are the hope and expectation that:

(a) - the DM will, on balance, weaken; and
(b) - foreign countries will no longer be able to resort to competitive devaluation.

If the Euro should turn out to be stronger than the DM, the chemical industry, for example, with its high export share, will face the same problems it faces today *vis-à-vis* weak currency countries like Italy. The firms' worst fear is that EMU is postponed, because then the DM will become the safe-haven currency and will appreciate.

Production firms, therefore, prefer the widest possible EMU with a weaker Euro. The insurance company surveyed, in contrast, prefers a stable monetary union to a large one. It sees benefits from the single market and a single currency in an increase in income and wealth which is good for its business. It emphasizes, however, that the company was represented in all EU countries long before the Maastricht Treaty. It, too, sees the greatest risk in a postponement of EMU because of the currency turmoil which would ensue.

Appendix IB: Case study reports

Case study A

General information

The company is a medium-sized producer of men's clothing with annual sales of DM 51 million in 1994 and 270 employees. Exports account for about 40% of total sales (DM 22 million), while imports, mainly from Italy (close to 90%), amounted to DM 9 million or nearly 17% of total sales.

The bulk of exports is directed at the Benelux countries (60%), the UK (20%), and Austria (16%). This pattern is determined by the target firms which are medium-size retailers with three to ten outlets. France is not an export market as stores there are either very big or very small.

With the exception of the UK, invoicing is done in DM which is said to be due to relative market power. In the case of the UK, the foreign buyer remains a loyal customer only because he does not have to bear the exchange rate risk.

Company strategies

The company is strongly export-oriented and hence would not shift its focus more to the domestic market for reasons of exchange rate fluctuation only. The costs of exchange rate fluctuation are also deemed too low to warrant real adjustment. Shifting production abroad is out of the question because production capacity is too small and not easily divisible.

The company does engage in in-house measures, like trying to adjust the terms of payment. Adherence to common payment practices is, however, considered more important. Prices and terms of payment are normally fixed for one season. The major currency for which hedging is important is sterling which is outside the ERM. The opening of a sterling account at a German bank in London permits the netting of sterling receipts and payments. Because receipts far exceed payments, only a small part of the exchange rate exposure is covered in this way, however. One-third of the remainder is not hedged, one-third is covered by forward operations, and one-third by options. This kind of diversification is chosen to avoid rising hedging costs as one may easily shift between instruments.

Costs of foreign exchange management

Bank fees for exchanging foreign currency into DM depend on the transaction volume, normally 1.5 0/00 or at least DM 30. The firm only pays DM 20 per transaction at its house bank. This is independent of the currency. Costs are believed to have declined slightly since the late 1980s.

Costs of forward transactions are said to be the same as for spot transactions. Options cost DM .02–.05 per pound sterling. Hedging costs have remained roughly unchanged.

Differences between transactions within the EU and those with countries outside the EU

The firm has no dealings with countries outside the EU. Cross-border bank transfers take 5–20 days – substantially longer than domestic bank transfers (two days). The period seems to have become longer since the late 1980s, especially for transfers from Austria which take twice as long now as before Austria's accession to the EU.

Effects of the single market

The firms discerned only few effects of the single market. In the financial realm it is considered very important for a relationship of mutual confidence to grow. That is why a change to another financial institution (bank or insurance company) will take time.

Case study B

General information

A medium-sized producer of automotive parts, this company's exports account for almost half of its total sales (DM 171 million in 1994). Imports are much less, at DM 28 million or 16%. The firm employs a staff of 570.

Eighty-five percent of exports go to the EU, France and the Netherlands accounting for 20% each. Even more, 94% of total imports originated in the EU, mostly in Austria (30%), Italy (21%), the Netherlands and Sweden (14% each).

Exports are exclusively invoiced in DM. As the second major producer in Germany, the company has been able to imitate the market leader's invoicing habits. This trend may be changing, however. Most of the imports are also invoiced in DM with the exception of imports from the USA which must be paid in US dollars.

Company strategies

The company has been trying to increase its domestic and foreign market shares, the latter irrespective of currency or currency volatility. There has been no attempt to relocate production facilities to foreign countries. Financial hedging measures have not been used to date. This will change in future.

In-house measures have been the only strategies to avoid foreign exchange rate risk. They are based on the following pricing policy: at the beginning of the year, a base price is agreed with the customers in the UK (the only export country with a volatile currency). The British customer is guaranteed a maximum price. Should the value of sterling fall, raising the base price to the customer above the maximum, the company assumes the difference. Should sterling rise, the customer benefits from the drop in prices. In individual cases, price reductions may be granted in order to compensate for an appreciating DM.

Transaction costs

Because of invoicing in DM, the only transaction costs which arise are those for bank transfers in the same currency. Bank fees amount to 0.75 0/00 to 1.75 0/00 of the transaction value. To date no attempt has been made to compare fees of foreign and domestic banks and thus to

assess the effect of the single market. Fees are the same for transfers from all industrialized countries. Transfers from developing countries are more expensive.

Using SWIFT, there is no difference between the time needed for domestic transfers and that for transfers between the home country and a foreign country.

In-house costs are negligible, as they are a minor part of the salary of two people in finance.

Case study C

General information

The company is a small producer of soldering equipment in the metalworking industry. It has annual sales of DM 23 million of which exports account for DM 15 million or 65%. There are no imports, suppliers being located within a radius of 50 km. The firm has 95 employees.

Almost 40% of all exports are shipped to the EU, mostly to France (19%) and the UK (14%). The USA and South-East Asian countries account for 22% and 30%, respectively, of total exports.

Invoicing is exclusively in DM which is a result of the particular distribution chosen. There are no direct shipments to customers; rather all shipments go to a local representative in each foreign market. These representatives know the market, the language, the customs and have exclusive right of distribution. They buy the machinery in DM from the producer and resell it for local currency, normally achieving a profit margin of 15–30%. The cost of foreign exchange management is thus shifted to the representatives abroad. Only in the USA and Australia does the company have its own distribution organizations.

Company strategies

There is no financial hedging, only in-house measures to deal with the consequences of exchange rate fluctuations. If the DM appreciates, the representative's profit margin is squeezed. As a second step the company may send a process engineer free of charge, in order to retain the customer despite the rising costs. Finally, the company will try to offset the effect of appreciation on its prices by cost-cutting measures. Only if foreign customers are actually lost may the company shift its sales efforts to the domestic market.

Transaction costs

Bank handling charges amount to 2 0/00 to 2.5 0/00 of a standard-size transaction in DM. This is considered a reduced fee for special customers. There is no difference in fees for transfers from different industrialized countries. For less developed countries letters of credit are used for which costs are substantially higher. Average costs have remained the same.

Bank fees are expected to decline in future, less because of the single market than because of technical progress (e-mail). This small entrepreneur would not consider changing to another EU bank for fear of losing his privileged status with his house bank and related consultancy services.

In-house personnel costs for foreign financial transactions are negligible. Transfers from abroad are said to take about ten days longer than domestic transfers.

Case study D

General information

The company is a major motor vehicle producer with group sales in 1994 of DM 42 billion, of which DM 10 billion were achieved abroad, mainly in the UK. Total employment at the end of 1994 was 109,362. Imported products amount to 45% of sales and are rising. Forty per cent of total imports originate in the EU, 30% in non-EU Europe, 15% in the USA and Japan each. Two thirds of total output is exported. Of that, 40% are destined for the EU, 10% go to the rest of Europe, 30% to the USA, and 15% to Japan.

The company has foreign production facilities in EU countries, the USA and assembly plants in other countries. It has its own distribution network in most countries. Ninety percent of all exports are sold via these company distributors.

All exports are invoiced in DM. On the import side, 15% are invoiced in US dollars, the rest in a variety of other currencies.

Company strategies

Because this is a very decentralized corporation, responsibility for foreign exchange management rests with its subsidiaries, which do, however, get the foreign exchange forecasts from the corporate treasury. Because of decentralization, foreign currency netting is not practised.

Financial hedging is the most important strategy, although more production plants are being located abroad (USA) and there is increased sourcing in other European countries.

But foreign exchange management is done separately from basic business with the aim of steadying the exchange rate at which transactions are converted into or from the home currency. This is done with the help of an exchange rate model (since 1992). Maximum hedging period is three years.

ERM currencies are rarely hedged. Non-ERM EU currencies, the US dollar and the yen are the major currencies whose exchange rate risk is managed. Ninety percent of all financial hedging is done via forward transactions, the remainder via options. The choice of instrument is determined by the term of the contract and the flexibility of the instrument. The cost and technical handling are deemed unimportant.

Transaction costs

The transaction costs are considered to be low. The banks know that the big corporations have the same sources of information as the banks themselves and can negotiate the fees. There is little difference between EU and other major currencies. For some currencies, however, hedging costs are high.

Case study E

General information

A chemicals producer with 12,880 employees, the company produces silicone (inputs for the automobile industry and construction), semiconductors (silicium wafers), polymers, vinyl chloride and other materials. Total 1994 sales amounted to DM 3.6 billion, 36% of which were realized in Germany, and 64% abroad.

Most of the exports, 55%, went to countries of the EU, especially to Italy (13%), France (9%) and the UK (7.5%). The rest of Europe accounted for a share of 9.5%, the USA for 15.3%.

Exports are invoiced in 17 currencies, one-third each in DM and US dollars. In semiconductors the export share is 80%. Three-quarters of these exports are invoiced in foreign currencies, the US dollar accounting for one-half.

The company has 16 production plants and sales subsidiaries in other European countries (mostly the latter) and 11 in non-European countries, five of which in the USA. As expected, the reasons for this internationalization are costs and the proximity to the market.

Company strategies

The company has responded to exchange rate fluctuations by relocating abroad, financial hedging, and in-house measures. Fluctuations of the following currencies have been of special importance: ERM currencies (Spain), non-ERM (Italy, UK, Sweden), non-European (USA, Japan).

Foreign currency claims average DM 1.2 billion out of total claims of DM 4 billion of the German group. Imports and thus foreign currency liabilities play a subordinate role. The company hedges around 25% of claims in ERM currencies, 5% in non-ERM EU currencies (now and then sterling), and 40% in non-European currencies (primarily dollar and yen). The average amount hedged is about 30%.

The company has a very sophisticated hedging system (real time) which relies primarily on options (70%), supplemented where necessary (i.e. if the option volume is very high) by forward contracts. Use of options has increased during the past five years, utilizing modern computer programs. The company also relies regularly on dynamic hedging programs, at times on foreign exchange and interest rate swaps. The aim is to retain the value of the real transactions on a spot basis. They claim to have been very successful. The choice of instrument depends on relative interest rates, option premiums, the term of contract, technical handling and the flexibility of the instrument.

Foreign exchange management costs

Bank fees are said to be negligible. They are considered the same for intra-EU and extra-EU transactions and have remained unchanged since the end of the 1980s. Risk management is centralized in the Munich treasury offices. Three out of 15 members of the staff are engaged in risk management, 60% of which is foreign exchange management. Personnel and equipment costs are considered low (less than 0.5% of the export volume). Costs of options depend on the ratio of premiums paid to premiums earned. The aim is to keep this ratio smaller than one.

Effects of the single market

This is said to be difficult to identify. Globalization has reduced the interest cycles which are important for foreign exchange risk management. Fixed exchange rates in the EU would facilitate product pricing, but even with EMU foreign exchange management would have to continue for the other currencies and savings would be small.

Case study F

General information

This diversified technology-based electrical engineering company is also one of the largest and most international German firms, with production and distribution subsidiaries in most countries of the world. In 1993–94 sales totalled nearly DM 85 billion, foreign sales alone amounting to DM 50 billion. By region, Germany held the largest share of total sales at 42%, all of Europe a share of 68%. The Americas accounted for 17% (the US for 13%), Asia/ Australia for 9% and Africa/Near East/Middle East/FSU for the remainder of 6%. The group employed 382,000 people world-wide.

Because of the large product range (from light-bulbs to nuclear power plants) all currencies play a role in invoicing. Still, the company tries to invoice as much as possible in DM which depends, however, on its competitive position in the various markets. The role of sterling has declined, and sales to the USA and Asia are all dollar-denominated. In Asia especially, but also in other developing countries, trade partners increasingly insist on invoicing in their own currencies.

The foreign exchange management is decentralized; subsidiaries must follow the guidelines issued by the central offices. Netting is done centrally.

Company strategies

The basic company objective is to maintain competitiveness. Foreign exchange management is considered a subordinate activity consisting of temporary measures. Like other large international companies surveyed, strategies in response to exchange rate fluctuations do not include domestic or regional reorientation of production and trade or strategic alliances for exchange rate reasons. Rather the company relies on financial hedging, in-house measures and the use of subsidiaries in foreign countries. Foreign exchange management is directed at longer-term fluctuations rather than short-term volatility, although both play a role.

Within the ERM, no hedging is done *vis-à-vis* high-interest bearing currencies. On average, 75% of foreign currency assets and liabilities in ERM currencies were hedged and 80% of the exposure in non-ERM EU currencies and non-EU currencies.

Almost all financial hedging is done via forward contracts, although some factoring is used. The reasons for the choice of instrument include all those offered in the questionnaire.

Among the in-house measures, foreign exchange netting plays a major role. Also mentioned were the use of payment leads and lags and the clauses permitting compensatory price changes. The risk management staff has been increased. They issue guidelines on exchange-risk management to the large subsidiaries.

Transaction and hedging costs

The group has foreign currency accounts in all countries, minimizing the need to exchange currencies. Transaction costs are very low, believed to be much below 1.5 0/00 of sales. They are low because they depend on the way payment flows are organized. It is this organization which has reduced the company's costs rather than the effect of the single market. No difference in costs is perceived between intra-EU and extra-EU transactions.

Personnel costs for the currency management staff are below 0.5% of foreign sales. Hedging costs may be as high as 2–4% of foreign sales, having risen in absolute terms but fallen in relation to total sales.

Case study G

General information

The company is a major German insurance group with gross premiums of DM 66.1 billion in 1994, of which 43.8% came from outside Germany. There are 28 group companies in the world, 13 in Western Europe, three in Eastern Europe (Czech Republic, Hungary, Russian Federation), six in the Americas, four in Asia and two in Africa. In addition there are five affiliates and 20 cooperation partners, branch and representative offices abroad. At the end of 1994 the group had 67,800 employees world-wide, 36,500 in Germany and 31,300 abroad.

Germany remains the major market, accounting for 56% of all premiums written. The rest of Europe has a share of 24%, concentrated in Italy, the UK, France and Austria. North and South America follow with a share of 19%.

In 1994 the total book value of investments held by the group went up by DM 17.2 billion to DM 230 billion. Of the total increase, DM 14 billion was generated in Germany. Investment abroad rose by 11.9% in local currencies. German companies now account for 68.3% of the total investment portfolio. New investment was mainly in securities (bonds, stocks, mutual funds).

Insurance companies are different from production firms in that their business is not global but multilocal. Products are much more differentiated, must be perfectly tailored to the local environment, including preferences, investment regulations, pension systems, etc.

Currency flows, which are small relative to premium income, arise from acquisitions, increase in equity capital, and dividends.

Company strategies

Only required reserves and dividends are hedged in DM. Assets are diversified via foreign currency investments. Their exchange rate risk is not hedged because exchange rate changes bear chances as well as risks. Exchange rate risk is contained in the interest rate. Most of the assets are long-term. Asset allocation benchmark is normally changed once a year.

Each local company holds few foreign assets. Investments must be currency congruent, i.e. assets and expected liabilities must be in the same currency. Financing modes differ from country to country. In Germany there are only two maturities (five and ten years), in France and the UK financing is more short-term.

Costs of foreign exchange management

Foreign exchange management is discussed now and then. There is no special staff dealing with it. Adjustment is part of general asset management.

Effect of the single market

The financial services industry can now sell its products in every EU Member State without being located there. Services are based on home country law. This insurance group has been internationalizing for 25 years, however. It sees benefits from EMU if it is non-inflationary and stable, rather than large. It considers the biggest risk today to be the abandonment of EMU because of the likely currency turbulence and the possible return of protectionism.

Case study H

Background

This big German bank firmly declined to discuss its own account strategies. It only consented to an interview concerning its foreign exchange management on behalf of client firms. Two department heads were interviewed, one dealing with large clients, the other with small and medium-sized firms. These interviews yielded interesting information which complements that gained from the individual company interviews.

General information

As is well known, German companies' foreign trade is mainly with other European countries, the USA and Japan, but now the focus of the larger firms is shifting to East Asia and the emerging markets in Eastern Europe and Asia. Exchange risk hedging is more important for exports than for imports. Invoicing of exports is in domestic currency where possible (high-quality products, competitive advantage). Preferred currencies are schilling, guilder, and franc. Because these currencies are rather stable relative to the DM, the exchange rate risk is too small to require much hedging. To gain entry to new markets, invoicing is done in the foreign currency.

Since the 1992 ERM crisis there has been a trend toward centralization and rationalization of the foreign exchange management function in large German corporations, permitting increased use of netting.

Company strategies

Reorientation toward the domestic market is not an option. Regional reorientation for exchange rate reasons may be done by the smaller, but not the larger firms. Relocating production facilities to foreign countries is increasingly done in order to be closer to the market. Some firms (paper, automotive supplies) relocate to low wage countries. There is also more global sourcing today.

Financial hedging is the preferred strategy, although small firms shy away from the costs. In-house measures include netting. According to the bank, changing payment dates is an uncommon practice in Germany for medium-sized and for larger firms. Firm payment periods are the norm.

Hedging strategies are triggered by longer-term exchange rate fluctuations and perceived changes in trend. Day-to-day observation of the Forex market is important, however, to see the trend change early and to get the timing right. Forward contracts are normally written for three months, the typical payment period. Very long-term hedging is done only by big firms with very large orders (Airbus). Important are exchange rate fluctuations of EMS currencies, and the dollar, increasingly also those of emerging markets in East Asia. There are no forward markets for Central/Eastern European currencies except the Czech krona.

Before 1992 there was no hedging of ERM currencies. Since then such hedging has increased, but especially exposure in non-ERM currencies like sterling and lira. The lira, whose volatility has been very high for political reasons, is the prime focus of German companies. Fifty percent of the positions in ERM currencies are hedged and 50% in non-ERM EU currencies. For non-European currencies, only 25% of the positions remain open. Of the remainder, three-quarters are hedged with forward contracts, one-quarter with options. Active Forex management implies the separation of instruments and time periods, the early unwinding of positions where necessary. Rediscounting of foreign exchange drafts is rare. Currency insurance can only be bought for periods exceeding two years and falls therefore outside the normal hedging period. Factoring is considered a financing instrument rather than a hedging instrument and is too expensive for small firms.

Ninety percent of all hedging is done with forward contracts, 3% by discounting foreign currency drafts, 2% with options and 5% via factoring. Other measures include netting, more invoicing in domestic currency and perhaps in dollars.

Costs are a major determinant of the particular hedging instrument chosen. Forward contracts are preferred to options. Option deals require premium payments up front, and the engineer-manager may not want to incur any additional costs even though they may result in premium earnings. The technical processing may be complicated by the paperwork involved.

Transaction and hedging costs

Banks do not charge commissions for foreign exchange transactions. Fees are charged for the currency exchange of notes only (tourism). For firms the exchange rate quoted is the net rate. There is no risk involved. Banks profit from the lending side of the business, and try to link foreign exchange management with other banking services demanded by the customers.

Banks' earnings derive from the spread which can be held to a minimum by big, well informed companies. Bank profits are then made only on volume. Bank fees are higher for small customers than for big ones.

The bank's processing charge is about DM 400 per US$ 100,000 or around 0.3%. The cost depends on the volume traded. For some (smaller) clients, the cost of hedging may amount to 4–5% of their exports: the average is put at 1–2%. Hedging costs for intra-EU transactions have risen since 1992 because of increased volatility.

There is no difference between the transaction costs regarding major currencies. There is also no difference between intra-EU and extra-EU transaction costs. The bank suggests that competition among EU banks may have reduced intra-EU costs to the customers. But costs have generally declined since the end of the 1980s because of technical progress. The time needed to transfer money has become shorter for the same reason. Transfers of EU currencies

take as long as domestic currency transfers (same day). Non-EU transfers take a day longer wherever there is a time difference.

The personnel costs for the foreign exchange management at the bank is small, under 0.5% of volume traded.

Case study I

General information

This small provider of tourist services sells foreign holiday packages to German tourists, i.e. is an importer only. The EU accounts for 22% of its foreign travel business, with Italy still the favourite European destination of Germany tourists (12%), followed by France (6%) and Spain (3%). The rest of Europe accounts for 15%, but the lion's share falls to the USA (48%).

Invoicing is done mostly in DM (25%) and US dollars (45%), reflecting the regional breakdown between Europe and the USA.

Company strategies

The firm uses financial hedging only. It hedges its liabilities for the duration of the catalogue time of nine months, the time for which prices are fixed. Forward contracts are arranged monthly for three to nine months, covering 95% of all positions. The remaining 5% of the risk is hedged via options. The choice of instrument is determined by the cost, the technical handling and flexibility.

Transaction and hedging costs

Hedging is done with the help of more than one bank. Bank commissions and processing fees amount to less than 0.5% of the amount of currency exchanged. There are no differences in transaction costs between EU and non-EU transactions. These costs are said to have risen since the end of the 1980s.

One person handles the foreign exchange management among other responsibilities. Hence these costs are low (less than 0.5% of sales) and they have remained unchanged.

Hedging costs, too, are below 0.5% of the foreign exchange volume and have remained constant in relative terms.

There is no difference between the time required for transfers from a foreign currency into DM and that for DM-DM transfers. There is also no difference between intra-EU and extra-EU foreign currency transfers.

Effect of the single market

The firm appreciates the modernization of banking services that has come as a result of financial deregulation and greater competition within the EU. It would welcome a common European currency, because lower transaction and hedging costs would stimulate the travel business.

Case study J

General background

We finally also interviewed a large tourism operator with total sales of DM 4.4 billion and imports of DM 2 billion. This company has 1,600 employees. It operates primarily in the EU which accounts of 70% of all imports. Spain is the major destination with a share of 50%, followed by Italy with 7%. The rest of Europe accounts for 15% and the USA for around 5% of all travel services sold.

The invoicing practices are quite different from those of the small competitor. Only 5% is invoiced in DM, 10% in dollars, and the rest in a variety of currencies.

Company strategies

Exchange rate fluctuations are a very important factor for a tourism operator and this applies to all currencies, ERM, intra-EU and non-EU. The company responds only with financial hedging and in-house measures (netting). It was very reluctant to discuss details of its hedging policies because they are an integral part of its pricing policy and hence of its competitive advantage.

It seems, however, that forward contracts and options are used to hedge the exchange rate risk of all currencies. Because no information was given as to the degree of hedging in various currencies, we cannot deduce any differences in treatment of EU and non-EU currencies. Participation in positive developments was mentioned as a choice of hedging strategy. This seems to imply that open positions are carried wherever exchange rate movements favour the firm, e.g. a depreciating lira or peseta during the catalogue period. In fact, it was mentioned explicitly that the company (as well as the entire German tourist industry) profited from the weakness of the currencies of traditional holiday countries for German tourists (Spain, Italy and the USA).

Transaction and hedging costs

The company, for which active foreign exchange management is important, estimates its costs for bank commissions and processing fees for currency exchanges at below 0.5% of transaction volume. It sees no differences between the cost of intra-EU and extra-EU transactions and a generally falling trend for these costs.

The company employs a special staff for foreign currency management. Personnel and equipment costs are estimated to be less than 0.5% of the foreign trade volume and declining.

Pure hedging costs are also put at the lowest percentage, i.e. below 0.5% of the trading volume and are said to have declined since the late 1980s.

Foreign currency transfers in EU currencies do not take longer than transfers in DM. One day must be added for transfers from non-EU currencies into DM. Here, too, the required time period has declined over time.

II. Country report II: France

II.1. The questionnaires

II.1.1. Objectives, sampling rules, features specific to France

Our task in the present instance was to conduct a postal survey, using a questionnaire designed by IFO, of a sample of 400–500 companies deemed to be representative of French companies in terms of sectors of activity. Additionally, the companies selected had to be involved in multi-currency transactions (export, import, foreign manufacturing and marketing units).

Given the above, it is clear that although the whole of industry meets these criteria, the same cannot be said of the service sectors, engaged largely in 'domestic' activities. It is for this reason that, seeking to approximate the relative weighting of services in total French exports (20%), we gave preference to service firms in the fields of transportation, telecommunications and corporate services.

Almost 60% of the companies selected employ more than 500 people. This sampling is fairly representative of a situation in which, on the whole, the larger the company, the more internationalized it is. Nevertheless, a deliberate decision was made to include a significant percentage of smaller firms (10–99 and 100–499 salaried employees) in the sample, with the aim of assessing the influence of corporate size on the methods and costs of multi-currency management and their impact on strategy.

Using a questionnaire common to all the European partners in this project and comprising five sections (key socio-economic characteristics, foreign trade characteristics, strategy for dealing with currency exchange rate fluctuations, methods of covering exchange risks, and multi-currency management costs), the survey conducted in France in October and November 1995 yielded 401 valid responses. In order to achieve sufficiently complete replies to the questionnaires, it was necessary to follow up the postal survey with telephone contacts in the case of many companies. Following this, with few exceptions, all the questions received an acceptable response rate of at least 75%. The unfortunate exceptions to this, which proved unavoidable, were the 45% of replies from companies in the sample who could not or would not answer the question as to the location of their currency management unit, as well as the about 50% replies which exclude the answers to question IV.

Given the French tradition where response rates to voluntary surveys is a highly unfavourable one for those conducting such projects (5% response rate to 'unsolicited' questionnaires), it did not seem possible to arrive at the minimum target of 400 companies using any such method: a selection of 8,000 firms would have been needed, the vast majority of which would inevitably have been SMEs, and the unpredictability of the responses would have made it impossible to guarantee that the 400 respondents were all suitable for inclusion in the sample. For these reasons, the mailing of the questionnaires was preceded by telephone contacts intended to ensure maximum confidence that each company would cooperate and to optimize the composition of the sample. This approach, which is necessary in France, nullifies the question on the 'number of mailed surveys'; by definition here, this figure is just above the number of responses actually obtained (after screening out questionnaires still insufficiently complete after telephone follow-ups). This data is therefore not included in the relevant tables.

II.1.2. Sectoral classification

The sectoral classification recommended by IFO for the statistical analysis of survey responses comprises eight sectors, these being in reality NACE code groups. The sectors concerned are:

(1) basic materials industry;
(2) iron, steel and non-ferrous metals industry;
(3) mechanical engineering, electrical and automotive industry;
(4) processing industry;
(5) mining;
(6) food, beverages and tobacco industry;
(7) building and construction;
(8) services.

In reality, the 'mining' sector is now of very marginal importance to the French economy and accounts for only 0.64% of exports. Very few companies are active in this sector, and none was included in this survey.

The fit between the European NACE classification and the French classification system is now ensured by the use by INSEE of the NAF (Nomenclature d'Activités Françaises – French Industrial Classification) and NAP (Nomenclature d'Activités et de Produits – French Industrial and Product Classification) classifications. The latter divides the overall economy up in a rather different way, using a branch-based logic which means that the turnover generated by a given company active in more than one branch will be split to reflect that fact, while NAF (and by the same token NACE) allocates all turnover to the dominant branch of activity, in accordance with a sector-based logic.

At present, precise sectoral data can be obtained only for industry (sectors 1 to 5), other than the food, beverages and tobacco sector. This data is collected by the Ministry for Industry by means of an annual compulsory survey of all companies with more than 20 salaried employees. Fortunately, this limitation produces only a limited bias for industry, in which most of the sectors are satisfactorily covered; but in the case of the food, beverages and tobacco sector (6), building and construction (7), and services (8), the sectoral database is dependent on other ministries and remains incomplete. Conversely, it is possible to obtain all the statistics deriving from NAP (branch-based). This option, which we have chosen to implement, seems to offer the best means of extracting data that is both significant and suitable for consolidation (the duplicated accounts and gaps resulting from adding an 'industry/sector' classification to an 'other activities/branch' classification are of secondary importance).

II.1.3. Presentation of the sample: intrinsic features and degree of representativity

Seventy-eight percent of the companies surveyed were active in industry, principally in the mechanical engineering, electrical and automotive (31%) and processing (22%) sectors. The 22% of non-industrial companies were largely active in the services sector (19%), and the remainder in building and construction (3%).

Representative features

One can be fairly sure that the sectoral make-up of the sample is representative of the national make-up of exports, as is shown by Table I.1.1. Where exports are concerned, metals, and especially services, are slightly over-represented, unlike the basic materials and mechanical engineering, electrical and automotive sectors.

Comparison of exports (I.1.1) and output (I.1.2) at the level of the national economy enables the major exporting sectors to be identified. These are quite naturally the industrial sectors – specifically, metals and mechanical engineering, electrical and automotive.

Table I.1.4 throws a different light on the two points set out above (the degree to which the sample is representative/sectoral breakdown of exports; percentage exports by sector at the national level). The second point can be read off directly (right-hand column). Conversely, interpretation of the left-hand column of this same table, whose values are consistently higher than those in the right-hand column, is quite another matter – the companies chosen for the survey were usually selected for a higher-than-average readiness to trade internationally, generating the observable bias, which increases along with the over-representation of the sector's share of exports (against total exports) in the sample.

Where output is concerned, the sample is by its very nature less representative, since this was not a primary criterion in building it. It should be noted, for the sake of completeness that there is an 'unavoidable' over-representation of all industrial sectors (since they export more).

Finally, the over-representation of output observed for all the industrial sectors is even more marked where numbers of employees are concerned (I.1.3), due to lower marginal work productivity than in the case of services.

Table I.1.5 allows the degree to which the sample is representative to be analysed according to another criterion: the source and application of foreign trade-related cash flow. In general, the foreign trade organization of the companies in the sample is less directed at Europe than the national average; this is true for both imports and exports. The USA and Japan in particular are over-represented, especially for imports. Within the former EEC, the most under-represented of the principal trading partner countries are, in decreasing order, Spain, Benelux, the UK, Italy and Germany.

Intrinsic features

The description of the sample is largely complete with the addition of the following tables, which provide a breakdown of the company sample:

II.1.1: by sector and staffing band,
II.1.2: by sector and by percentage band for contribution of exports to overall turnover,
II.1.3: by sector and by percentage band for imports (contribution to overall turnover),
II.2.1a: by sector and by main export currencies used,
II.2.1b: by staffing band and by main export currencies used,
II.2.2a: by sector and by main import currencies used,
II.2.2b: by staffing band and by main import currencies used,
II.3.1a: by sector and by location of foreign manufacturing facilities,
II.3.1b: by staffing band and by location of foreign manufacturing facilities,

II.3.2a: by sector and by location of foreign sales and marketing facilities,
II.3.2b: by staffing band and by location of foreign sales and marketing facilities,
II.3.3a: by sector and by location of multi-currency management unit,
II.3.3b: by staffing band and by location of multi-currency management unit.

These tables can be used to highlight the most significant features of the sample:

Corporate size

Overall, the sample includes 59% of companies employing more than 500 people as at the end of September 1994, 35% in the band 100–499, and 6% in the band 10–99.

Two sectors force up the percentage of large companies (> 500 employees): services and mechanical engineering, electrical and automotive. At the other extreme, the sectors where large companies are rarer are – ranked in descending order – metals, building and construction, processing industries, food, beverages and tobacco, and basic materials.

The breakdown of the presence of small firms in the sample (10–99 employees) inevitably shows a degree of symmetry with the above ranking: mechanical engineering, electrical and automotive and services trail. Two specific features can be pointed out: firstly, the metals sector is absent here (and is correspondingly strongly represented in the 100–499 band) and, secondly, the very strong presence of basic materials (six companies of the 39 in the sector and the 22 in this employment band for all sectors taken together).

Percentage contribution of exports to turnover

Taking the sample as a whole, half the companies generate less than one-quarter of their total turnover from exports, one-quarter of the sample falls into the range between a quarter and a half for this parameter, and the remaining quarter of the sample earns the bulk of its turnover from exports. Here again we find the strongly export-led trend already identified in Section 3.1 for the mechanical engineering, electrical and automotive and metals sectors, the converse being true for services and building and construction.

Percentage contribution of imports to turnover

In the case of the vast majority of the companies (82%) imports account for less than one-quarter of their turnover. Only 6% have a level of imports higher than one-half of turnover. The sectors which import most are the same two cited under the heading of exports, to which should be added services, ranked third.

Invoice currencies for exports

With the exception of building and construction firms, half of which invoice their exports only in French francs, all other sectors commonly use foreign currency invoicing. The most advanced sectors in this respect are metals, ahead of basic materials and food, beverages and tobacco; behind the latter come the two other industrial sectors under consideration. The intensity of invoicing exports in foreign currencies increases with the size of firms.

Overall, the main foreign currency used is the German mark, ahead of the US dollar and sterling. According to the sample, this ranking seems to prevail in all sectors, with the exception of mechanical engineering, electrical and automotive, which uses the US dollar more often than the German mark. It should be pointed out that almost half of the companies

also invoiced in other foreign currencies, and that none of the 22 firms employing less than 100 people operates with the British pound.

Currencies used to pay for imported goods and services

The total or partial use of foreign currency for imports seems to be even more frequent than in the case of exports, although the 19% omitted responses to the question do leave some room for doubt on this point. The non-food industries are the biggest users of foreign currency, but services are not 'left behind'. Amazingly, medium-sized firms (100–499 employees) seem to use the French franc more frequently than small-sized firms (10–99). This may suggest a possible 'power relationship' with the exporter, in favour of French firms strong enough to be master of this decision (medium-sized), and not so strong as to be indifferent between dealing with the national or foreign currencies.

The currency ranking is identical to that for exports: mark, dollar, sterling. Sterling is, however, much less important here than for exports. In the individual sectors, this ranking continues to apply, although there is one exception: companies in the services sector buy more in dollars than in marks. As in the case of exports, almost 50% of the companies also buy goods and services in other currencies.

NB: The above observations should be considered with some circumspection, since the consolidated figures give equal weighting to any currency used, even if only to a limited extent, by any of the companies in the sample.

Foreign manufacturing, sales and multi-currency management units

Where these questions are concerned, the world is divided into four major regions:

(1) the single European market (ERM): Germany, Austria, Benelux, Denmark, Spain, France, Ireland and Portugal;
(2) the EU excluding ERM states;
(3) the USA;
(4) the rest of the world.

Manufacturing

More than 30% of the companies in the sample said that they had manufacturing units in the EU, with three-quarters located in the ERM states. The USA and the rest of the world were covered in terms of manufacturing capacity by only 8% and 12% respectively of the companies. Small firms are not concerned by foreign production units.

The most highly internationalized of the sectors were, ranked in descending order: processing industries; mechanical engineering, electrical and automotive; food, beverages and tobacco; building and construction; basic materials; services; and metals. The orientation of this internationalization is largely European, with the exception of basic materials and the food, beverages and tobacco sector, for which nearly 50% of foreign facilities were outside Europe.

Sales and marketing

Two-thirds of the companies in the sample have sales and marketing operations in the EU, more than 60% of them in ERM countries; 16% and 22% have a sales presence in the USA and in the rest of the world, respectively.

The smaller companies (< 100 employees), although not completely absent here, had a much more limited international sales and marketing presence.

The sectors rank as follows when classified by decreasing degree of internationalization of their sales force: metals; mechanical engineering, electrical and automotive; processing industries; food, beverages and tobacco; services; basic materials; and building and construction. Rather curiously, the bias in foreign sales and marketing facilities seems to be slightly less European than for manufacturing sites. The gap is, however, too narrow to draw any general conclusion in this respect (which might be that in order to sell far from home base, it is necessary to produce locally).

Multi-currency management

It is rather problematic to draw any substantive conclusions on this point, since 45% of companies did not answer the question. We will merely note that a slight majority of the respondents manage their foreign currency cash flow in France and that this general fact conceals major differences between sectors and sizes of company:

(a) foreign currency is managed on a very 'national' basis by basic materials, metals, and building and construction, but is located predominantly abroad for companies in the food, beverages and tobacco sector;
(b) multi-currency management by small firms is much more 'national' than for the others.

The location chosen for the multi-currency management unit was predominantly European, with the USA 'lagging' far behind, and the figure for Japan thoroughly 'marginal' in this respect. It should, however, be noted that more than 22% of respondents in the mechanical engineering, electrical and automotive sector delegated exchange management operations to locations in the USA.

II.1.4. Questionnaire evaluation overview

Corporate strategies for dealing with exchange rate fluctuation

Main strategies

Table III.1a: of all the potential strategies in the area of exchange rate fluctuations suggested to companies in the questionnaire, the top-ranking response fell into the category of measures linked to financial management techniques *per se* (50%). Next, in decreasing order of frequency, came: internal organizational measures (37%), redirection of sales toward the internal market (27%), and redirection toward external markets with stable currencies (27%). The other strategies were mentioned in less than 20% of cases.

This snapshot of the situation, derived from unweighted counting of responses, takes on a rather different appearance when the financial importance of exports to the companies is taken into account. This system of weighting makes it possible to distinguish between the 'values' of

different responses in terms of the degree to which the responding companies are engaged in export activity. The use of hedging measures is highlighted even more sharply (64%), although it ranks only little above internal corporate measures (62%). The strategy based on internal markets retains third place (33%), just ahead of the option of delocalizing production abroad (31%). The other measures continue to be less attractive. It can be concluded from this that delocalization is a very effective discriminant identifying companies that are strong exporters in terms of absolute value.

Finally, it is also possible to weight the responses by corporate turnover, with a view to identifying possible effects of corporate size. The results obtained if this is done are closer to those produced without weighting of any kind: financial management (52%), internal organization (49%), internal market (32%), imports from countries with stable currencies (29%), exports to countries with stable currencies (23%). The only genuine 'size effect' is the improved management of foreign procurement by large firms.

Table III.1b: a breakdown of the companies by size as measured by the number of employees supplements analysis using turnover weighting. This reveals a special situation for small firms (< 100 employees), less familiar with the use of hedging instruments and consequently just as interested in the security offered by given export destinations and even more so in the conclusions to be drawn for their corporate organization.

Table III.1c: consolidation of the figures in this table enables the responses of the companies to be compartmentalized according to the relative importance of exports (as related to total turnover), on the one hand, and that of imports, on the other. The companies with the highest levels of exports and imports are also those which use hedging against exchange risks and internal reorganization most frequently. Furthermore, although virtually all the available strategies are used with increasing frequency as export levels rise, the situation is quite different with respect to imports. Companies with strong involvement in imports in fact show little interest in matters of delocalization, export outlets or (more surprisingly) import sources.

Table III.1d: the strategic outlook of companies, when analysed sector by sector, calls for the following remarks. The metals sector is an enthusiastic user of hedging instruments, unlike food, beverages and tobacco, building and construction, and services. Supporters of reorganization and selection of partner countries are most numerous in basic materials, those of delocalization in building and construction.

Strategic adjustments to short-term exchange rate fluctuations; 'sensitive' currencies

Table III.2a: in general, the companies reacted to only a limited extent to forecasts of short-term exchange rate fluctuations, but more so for the medium term. Weighting by export level demonstrates the growing preoccupation with this aspect as the forecast horizon recedes, along with the much greater awareness of this on the part of strong exporting companies. On the other hand, turnover is less important as a discriminant.

The currency followed most closely is the US dollar, ahead of the currencies of ERM states and elsewhere in Europe. This result is especially evident when responses are export-weighted. It is striking that the companies were less attracted, in spite of their volatility, by sterling or the Italian lira (currencies outside the ERM), than currencies under the influence of the German mark.

Table III.2b: in day-to-day operations and on a quarterly basis, the strategic adjustments of companies grow along with the number of people they employ. Conversely, there is a great similarity between the behaviour patterns of the companies with respect to the one-month horizon. Beyond the calendar quarter, small firms (< 100 employees) are, oddly, more responsive than those of medium size (100–499 employees), although not as much as large corporations (> 499 employees).

The fluctuations of the US dollar are followed particularly closely by the large companies, which is doubtless to be seen in conjunction with their advanced degree of globalization, while small and medium-sized enterprises react primarily to movements in European currencies, including those outside the ERM (this is particularly true of the smaller companies).

Table III.2c: strategic responsiveness to exchange rate trends is a particular feature of companies for which exports represent at least one-half of turnover. Nevertheless, it is restricted to horizons beyond three months. Sample segmentation by imports throws no notable new light on the situation.

The companies most involved in exporting rank the fluctuations of the US dollar higher than those of European currencies among their corporate preoccupations, the converse being true of those generating at least 75% of their total turnover on the internal market. Where the impact of import levels is concerned, this is a discriminant for non-ERM European currencies, whose exchange rates are, comparatively speaking, 'neglected' by smaller firms.

Table III.2d: those sectors which are particularly sensitive to short-term variations (horizons limited to one calendar quarter at most) are the following, listed in descending order: metals; food, beverages and tobacco; processing industries; and services. When the horizon recedes beyond the calendar quarter, sensitivity increases overall, particularly in the cases of mechanical engineering, electrical and automotive, metals, and basic materials. The relative importance of the US dollar and the ERM currencies enables two broad families to be defined:

(a) dollar-centred: mechanical engineering, electrical and automotive, building and construction, and services;
(b) ERM-centred: basic materials, metals, processing industries, and food, beverages and tobacco.

In the case of the first of these families, it should be added that companies in the building and construction sector seem to pay little attention to European currencies outside the ERM (e.g. sterling, Italian lira), unlike the two other sectors cited here. However, any interpretation of this is to be avoided since the building and construction sector sample comprises only 13 companies.

Hedging techniques for covering exchange rate risks

Degree of hedging against exchange rate risks; 'sensitive' currencies

Table IV.1a: if no particular weighting is applied to the responses, the highest level for the use of hedging techniques is recorded for non-ERM European currencies, which rank above non-European currencies. This result highlights the weakness indicated above in sensitivity to variations in the exchange rates of higher-risk currencies such as sterling and the lira: 'hedging obviates the need for close monitoring'.

When responses are weighted by export figures, the result is highly instructive: companies which export a great deal are those which hedge more than two-thirds of their corporate liabilities and receivables. Seen from this point of view, it is apparent that these companies, very much involved in multi-currency management, are covering their holdings of ERM currencies just as much as their holdings in sterling or lira; signs of monetary stability do not suffice therefore to justify the abandonment of hedges.

Weighting the responses by corporate turnover has the effect of ranking the three currency families for decreasing recourse to hedging in the same was as for the unweighted order: non-ERM EU, non-European, ERM. Conversely, levels of hedging rise sharply due to the greater resources assigned by the larger corporations to such risk cover.

Table IV.1b: the three-family hierarchy defined above can be seen in small, medium-sized, and large companies. It should be noted that the 22 companies with fewer than 100 employees all show levels of currency hedging below 67% for ERM currencies (assumed to be stable) and non-European currencies (limited globalization). In addition, the same effect of size, whether defined by numbers of employees or by turnover, is reflected in higher levels of hedging for the bigger companies.

Table IV.1c: whatever their level of exports, companies tend to hedge strongly against risks connected with sterling and lira. However, the two other currency families lead to major levels of hedging only in the case of companies with export activity of over 25%. When ranked according to their import levels, the companies are classified as follows:

(a) very active importers hedge virtually identically for all three currency families;
(b) the other importers favour hedging high-risk European currencies more than non-European currencies. Levels of hedging are higher in companies of 'medium' size than in 'small' companies, with the exception of ERM currencies in the maximum hedging band.

Table IV.1d: there are two notable exceptions to the above ranking of the currency families defined in general terms in the maximum hedging band (> 66%) when the data is looked at in sectoral terms:

(a) companies in the food, beverages and tobacco sector have a greater tendency to hedge ERM currencies;
(b) in the basic materials sector, currencies in the ERM are hedged equally or more than non-European currencies.

Hedging instruments used

Five types of risk cover were specified: forward exchange transactions, discounting on foreign currency bills, factoring, exchange rate insurance, and 'other measures'.

Table IV.2a: only forward exchange transactions were commonly used by the companies. Points of divergence appear when they are differentiated in terms of level of exports: this main option is even more frequent for the biggest exporters, whereas the other companies tended to favour discounting on foreign currency bills and exchange rate insurance. Weighting the responses by turnover throws no new light on the situation, other than that the use of such hedges is more dependent on export turnover than it is on total corporate turnover.

Table IV.2b: sample segmentation by number of employees demonstrates that the frequency of recourse to forward exchange transactions and exchange rate insurance is in proportion to the size of the company concerned. Conversely, firms of medium size were more or less on a par for discounting on foreign currency bills and factoring. The latter was very little used by the smaller firms, like other instruments of the option or swap type.

Table IV.2c: examination of the practices employed from a sectoral point of view yields what are probably the most interesting results, although these resist easy interpretation. This is because atypical behaviour patterns are revealed, partly related to the degree of openness of the firm to import/export activity (systematic hedging), but also to unexplained preferences for certain instruments:

(a) the food, beverages and tobacco sector, for example, evidences a preference for the discounting of foreign currency bills and the other types of instrument;
(b) building and construction, on the other hand, stands out for its higher-than-average use of exchange rate insurance;
(c) finally, the services sector shows the same tendency to favour foreign currency bill discounting as food, beverages and tobacco.

Industrial sectors other than food, beverages and tobacco adhere more to the norm, although basic materials and processing industries are notable for their 'aversion' to any hedge other than forward exchange transactions.

Factors influencing the choice of hedging instruments

The choice of hedging instrument is influenced by the following parameters: cost, payment period of accounts in foreign currencies, technical handling, flexibility of instrument, and 'others'.

Table IV.3a: if no particular weighting is applied, the cost of the instrument is the primary factor in decision-making (it was cited by 45% of the sample), ahead of flexibility (42%), payment period of accounts in foreign currencies (40%), and ease of use (28%). Strong exporters and corporate heavyweights in turnover terms were especially influenced by these criteria, in particular the ease of use (56% and 43% respectively after weighting).

Table IV.3b: the size of the companies in terms of number of employees is also directly linked to the attention paid to the whole range of selection criteria. In particular, it should be noted that small firms (< 100 employees) are apparently impervious to the cost of the instrument and that those of medium size (100–499 employees) resemble large corporations in the attention they pay to this.

Table IV.3c: the interest shown in the various criteria for selection of hedging instruments varies in direct proportion to rising level of exports in the case of each criterion. Cost and flexibility dominate in the three export level bands, although the payment period of foreign currency accounts also strongly influences the choices of companies whose level of exports exceeds 25%.

Segmentation of the sample on the basis of import level yields a somewhat odd result: companies with medium levels of involvement in import activity (between 25% and 49%) seem to be more selective with respect to all criteria than those with high levels of such

activity (over 50%). In any event, this result offers solid proof that internationalization is far from being strictly commensurate in both directions (export/import).

Table IV.3d: sectors can be ranked as follows, in descending order, for the attention paid to the entire range of selection criteria: metals; basic materials; mechanical engineering, electrical and automotive; food, beverages and tobacco; services; processing industries; and building and construction. This ranking, when compared with the relative degree of involvement in exports in the various sectors, leads to the following observation: companies in the food, beverages and tobacco sector pay little attention, relatively speaking, to hedge selection criteria given what is at stake in the export activity of the industries concerned. The situation for basic materials is exactly symmetrical.

Where the instruments themselves are concerned, the cost/flexibility/payment period combination continues to lead in all seven sectors under consideration. One can, however, observe some weakening of the last of the three in the food, beverages and tobacco and building and construction sectors.

Measures supplementing instrument-based hedging

In order to supplement hedges based entirely on financial management techniques, companies may in some cases adopt other special management procedures: netting of foreign currency assets and liabilities, changing terms of payments, pricing policy, increased invoicing in local currency, increased ECU invoicing, increased invoicing in another international currency, increased staff involved in risk management, and 'others'.

Table IV.4a: the large number (eight) of items suggested leads to some scatter in the responses when they are consolidated without weighting. Four types of measure do, however, stand out, yielding between 16% and 20% of affirmative replies: changing the terms of payment, increasing the use of the French franc in trading, netting of foreign currency assets and liabilities, and pricing policy (price review clauses index-linked to changes in exchange rates).

The light thrown on this issue by applying export and turnover weighting is highly instructive, since it brings out the fact that companies genuinely preoccupied with the problems of multi-currency management are in reality less inclined to opt for negotiations based on increasing the French franc percentage in trading, which may prove to be risky (possible loss of contracts); these companies are better organized and take a thoroughly pragmatic approach to the management of foreign currencies. This high level of organization also shows up in the importance of the item 'increased staff involved in risk management': 12% without weighting, 26% with turnover-related weighting, 49% with export-related weighting. Moreover, with the last of these weighting methods, this measure can even be seen to rank in highest place, above netting of foreign assets and liabilities, adjustment of payment terms, and pricing policy.

Table IV.4b: the group of four methods cited above (unweighted consolidation) stays at the top of the list for small, medium-sized and large companies. The latter category does, however, stand out strongly, with more than 20% affirmative replies, compared with 10% to 15% for the two other corporate size bands. Large corporations prefer to modify terms of payment and, more especially, are the only respondents who choose to significantly reinforce their risk management teams. Medium-sized companies combined adjustment of payment

terms with French-franc-based invoicing. Smaller firms allied pricing policy with, as always, modification of terms of payment.

Table IV.4c: the three families defined by segmentation on the basis of export levels place at the top of the list the group of four types of measure twice cited above. It can be added that from 25% upwards, changes in the foreign currency of reference and especially the recruitment of risk management specialists are methods encountered with increasing frequency.

Table IV.4d: the industrial sectors, which are generally more open to foreign trade and naturally the biggest users of hedges, also evidence the highest levels of use of additional risk management techniques. The sectors can be ranked as follows in descending order, all hedging measures combined: metals; basic materials; mechanical engineering, electrical and automotive; food, beverages and tobacco; processing industries; services; and building and construction. Breaking the sample down by individual techniques, the following specific features stand out: the metals sector has a strong liking for adjustment of the reference currency; the food, beverages and tobacco sector takes little interest in netting foreign currency assets and liabilities, preferring to use specialized multi-currency management; services, in spite of a generally low level of involvement in this area, do not hesitate to recruit risk management specialists.

Multi-currency management costs

Bank commission

Table V.1a: more than half of the companies replying to this question (82% of the sample) pay bank commission of less than 0.5% on currency conversion transactions. Three-quarters come under the 1% level in this respect. Fewer than 2% pay more than 2% commission. The corporations which are most powerful (in terms of turnover) and most involved (in terms of export activity) are better placed, 85% coming in under 1% after weighting with the appropriate parameters.

A quarter of the companies state that they pay commission at a lower rate for EU currencies. The biggest and the most concerned by these issues were slightly less likely to claim savings in this respect, which may be interpreted as due to a preference for negotiation of better rates of commission on non-European currencies.

The number of firms stating that they have been paying less commission on European currencies since the end of the 1980s has reached a level more or less double that for companies declaring the opposite. However, the biggest group indicates that there has been no change. On the other hand, weighting of responses by turnover, and especially by export activity, produces a very different picture (fall = 55%; rise = 7%) for the latter weighting method. The biggest companies and those exporting the most have been the subject of close attention from banks in respect of intra-European trade.

Table V.1b: large corporations obtain, logically, the best rates, closely followed by medium-sized companies. Conversely, looked at in terms of the difference between European and non-European currencies, smaller firms (which probably have less favourable rates on non-European currencies than their fellows) are those which experience the biggest variations in rates. This is noticeable, although the inherent trend in the rates offered to corporate customers

on intra-European currencies since the 1980s is more likely to be favourable for bigger companies.

Table V.1c: commission rates offered to companies improve in direct proportion to their increasing involvement in both exports and imports. Likewise, companies with high export activity benefit from lower commission rates on EU currencies. Conversely, the trend for intra-European rates seems to have been equally favourable for all companies, regardless of the importance of exports and imports to their total turnover.

Table V.1d: sectoral analysis of the responses yields no surprises: the biggest exporters get the best rates. Ranked in descending order, we find: metals; basic materials; mechanical engineering, electrical and automotive; services; processing industries; food, beverages and tobacco; and building and construction. Excluding food, beverages and tobacco, industry as a whole remains the main beneficiary of the EU with regard to current rate spreads. This despite the fact that building and construction and services have seen the commission they pay on intra-European currencies fall even faster since the end of the 1980s; this can be explained by their poor position on extra-European currencies compared with industrial companies.

Internal organization and staff costs

Table V.2a: 22% of the companies in the sample have a specialist multi-currency management team. In fact, this group is made up almost entirely of those companies which are strongest and most concerned with such issues; they break down as follows: 51% and 72% after weighting using turnover and exports respectively. Most state that the costs generated by staff dedicated to this activity represent less than 0.5% of their total turnover. Such costs do seem to have risen somewhat since the end of the 1980s, especially for the bigger exporters; monetary instability in Europe since 1992 has obliged these firms to organize internally.

Table V.2b: none of the 22 small firms has a specialist team. The figures for medium-sized and large companies are 8% and 33% in their respective bands. The costs of such teams, when related to export figures, were lower for big companies than for those of middling size. In addition, big corporations have also been more successful in controlling increases in these costs since the end of the 1980s.

Table V.2c: only 10% of firms in the bottom export band said they had multi-currency management teams, as compared with 27% in the middle band and 41% in the top band. Of the companies concerned, those with the lowest levels of exports have the lowest relative costs, despite an 'unfavourable' common denominator (exports). Staff costs arising from hedging activities seem therefore to grow more quickly than the relative importance of exports needing to be covered. The same comments apply to segmentation by import band, although the discriminating power of this factor is more limited. There is, however, one exception to the upward trend in the cost of these teams observed since the end of the 1980s: fewer than 20% of those companies which export less but which have nevertheless opted for professional currency management have seen such a rise. It is true that this is a sub-family with a very limited sample population; for that reason, it is difficult to take the evaluation of this exception any further.

Table V.2d: the most highly organized sectors are, in descending order: metals; food, beverages and tobacco; mechanical engineering, electrical and automotive; basic materials; services; and processing industries. Conversely, none of the 13 companies in the building and

construction sector had a specialist team. With a few minor exceptions, we encounter here virtually the same sectoral breakdown in the sample as for exports (see Table I.1.4).

Costs, when related to export levels, largely in the 0–0.5% range, with some overflow into the 0.5–1% band, are not identical for all the sectors under consideration. For example, basic materials have the highest costs, a significant percentage falling into the 2–4% band. Conversely, metals, food, beverages and tobacco, and services are clustered without exception in the lowest cost band.

Hedging instrument costs

Table V.3a: the vast majority of the companies see their direct hedging-related costs as being contained within the 0–0.5% range. A very small number give a figure above 2%. Strong exporters enjoy lower costs for risk cover, which is not true of firms whose turnover is not towards the top of the range.

Furthermore, the trend in costs since the end of the 1980s seems to have been downward for companies with high turnover or high exports. The unweighted consolidated figures show a balanced situation, which adds usefully to the above description: companies of limited financial worth and exporting little seem to have been the 'victims' of a transfer of costs previously borne by the major operators.

Table V.3b: corporate size in terms of number of employees does not seem to be as effective a discriminant as net worth in assessing the advantages enjoyed by large corporations over smaller firms, even granted that such advantages exist. Furthermore, the response rate was lower for small companies (50%) than for medium-sized (54%) and large (74%) ones. In terms of the evolving situation, the validity of the inference in the previous paragraph as to the increasing cost burden for the most 'lightweight' economic players is strengthened by the observation of an increase in the costs generated by hedging instruments affecting those companies with small staff numbers (< 100 employees) to the advantage of corporations with more than 1,000 employees.

Table V.3c: companies generating between one-quarter and one-half of their turnover in exports bear the highest costs for risk cover, and the extreme categories are comparable in this respect. Segmentation of the sample on the basis of imports shows that the intermediate category is also penalized. This observation is highlighted clearly in the table only when the results are corrected to 100% on each item (i.e. eliminating non-responses).

The trend in costs since the late 1980s has been favourable to given companies in direct proportion to their lack of dependence on export markets. This state of affairs tends to be reversed where dependence on imports is concerned: a negative trend for the least dependent, with the medium and high categories saving much and little respectively.

Table V.3d: the sectors rank as follows when classified according to decreasing cost of risk cover: metals, well ahead of food, beverages and tobacco, services, basic materials, processing industries, and mechanical engineering, electrical and automotive. The responses from building and construction firms were too few in number to assign a ranking to this sector.

One sector has recorded a highly favourable trend for this type of cost: mechanical engineering, electrical and automotive. Conversely, firms in the basic materials sector have

seen these same costs rise over the last five to ten years. There seems to be no marked trend, either up or down, in the other sectors.

French franc conversion periods for currency fund transfers

Table V.4a: the period required for currency conversion via banking channels is not significantly shorter for EU currencies. On the other hand, although the unweighted mean period is two days, it falls to 1.3 days after weighting on the basis of corporate turnover and to 1.1 days after weighting with export figures. Those companies most involved in this type of activity evidently benefit from greater diligence on the part of the banks.

The trend since the end of the 1980s for conversion periods for all currencies, both European and non-European, has been towards a significant shortening, but with a more marked reduction in times for European currencies. Big exporters derived most benefit from this, more than companies with high turnovers.

Table V.4b: major disparities exist between companies in terms of staffing levels: big companies rank more highly, above medium-sized firms, with European currencies having a slight edge in both families, as they are converted a little more quickly. Small firms feature shorter periods for non-European currencies! Once again, prudence must be the order of the day in interpreting this finding: replies number a dozen or so for only 22 companies.

Whatever the corporate staff band, currency conversion periods have shortened significantly over the last five to ten years. This change has been favourable to given companies in direct proportion to their size, this holding true for both groups of currencies (EU and non-EU). The reduction in conversion periods is more marked for EU currencies and medium-sized to large companies. Conversely, small companies have seen these periods decrease relatively more for non-European currencies (see respondent percentages).

Table V.4c: paradoxically, companies with high export levels rank slightly lower than those in the medium band for corporate size. In both cases, European currencies are converted more quickly. Conversely, players restricting their activities to the internal market, which has longer conversion periods, see a reversal in the ranking of the two groups! This analysis can be transposed completely to sample segmentation based on import levels, with a few minor adjustments.

The most internationalized firms, in terms of both imports and exports, have benefited more from shorter conversion periods than other companies. In each of the bands, the consensus indicates that there has been a more significant shortening in the period taken to convert intra-European currencies.

Table V.4d: the sectors currently enjoying shorter-than-average conversion periods for European currencies are the following: basic materials; food, beverages and tobacco; and mechanical engineering, electrical and automotive (under 1.7 days). At the other extreme we find the processing industries, with a 2.8-day conversion period. The situation is somewhat different for non-European currencies: basic materials are followed (well behind) by food, beverages and tobacco, and services. Processing industries stay in last place, but the poor showing of mechanical engineering, electrical and automotive should be noted, this being the only sector (along with building and construction, which is too under-represented here to draw any substantive conclusions) evidencing almost a 0.5-day difference between the respective

conversion periods of European and non-European currencies. All sectors have seen reductions in conversion periods, this being especially true of metals and services. The differences in on-going trends between the two groups of currencies remain limited in all sectors.

II.2. The interviews

II.2.1. Introduction

The purpose of these supplementary follow-up interviews carried out in ten companies was to further explore the results of the quantitative survey, with the following goals in mind:

(a) to better understand the strategy for exchange risk hedging as well as changes in strategy and the effects on company organization, commercial and industrial policy;
(b) to detect the specific characteristics of European currencies from the point of view of hedging strategy and the instruments used;
(c) to analyse thinking within companies in regard to moving to a single currency and to obtain information on the possible consequences of this move, for both banks and companies;
(d) to understand the management of exchange risks in terms of cost and by revealing any of the specific characteristics of European currencies: changes in bank commission rates linked to currency exchange, changes in management cost and cost of instruments;
(e) to evaluate the degree to which various direct costs are known as well as indirect costs incurred by related measures (choice of suppliers made in regard to balancing sales/purchases in a given currency, etc.).

II.2.2. Company interviews

Eight out of the ten interviews were with companies who contributed to the quantitative inquiry:

(a) two of them concern firms operating in the iron and steel industry (one large and one small);
(b) two firms belong to the electronic industry: one is on the general public electronics market, the other on the semi-components production segment;
(c) two companies are linked to the automotive industry, the former as a motocar parts manufacturer, the latter as an agricultural machinery maker;
(d) one firm is involved in production of high quality leather goods;
(e) finally, one broker operating in the office equipment market has been included.

In order to enrich the information gathered in this interview phase, we found it necessary to contact two firms that had not been targeted by the quantitative inquiry. These represent respectively:

(a) the banking sector (one French major bank);
(b) the textile industry (activity severely damaged by recent monetary disorders).

The XX Bank

The XX Bank is presently carrying out a survey on the impact of the single currency on its activities, in terms of market and, potentially, of commercial policy.

The repercussions of the single currency on the trades and activities of the banking sector are numerous and complicated. Some trades closely or remotely connected with the exchange activities might disappear, while others should undergo deep transformations.

Logically, the use of the single currency should have two consequences:

(i) reduce the number of currencies in circulation; and
(ii) reduce the volatility of the currencies (bringing stability into the monetary system).

Thus, the activities connected with the interventions on the exchange rates should disappear, in the same way that the products linked to hedging the risk of variable rates will no longer be needed. The companies, as customers, should not turn so much to the cover instruments acting upon the exchange rates.

Bankers are less enthusiastic about this evolution; indeed since the end of the 1980s, because of the chaotic disorders of monetary markets, the banks have been greatly developing their know-how and the insurance trades against the fluctuations on the exchange markets. A greater monetary stability evidently decreases the risks on the exchange rate products.

The other trades affected are the trades connected with banking intermediation: national banks are playing today the role of intermediate financiers, placing the 'papers' of the companies on the markets. The disappearing of the national markets should compel banks to find positioning on the European market. The intermediation is very much concentrated and is only worthwhile for the large leading banks.

The repercussions are not so obvious on the activity of the bank brokers. On the contrary, they are clearly identified with the treasury trades; the XX Bank acts as a treasurer for counterparts (banks or companies) of the Banque de France, using its preferential right of access to the monetary market in order to refinance these counterparts. In the future (if the single currency becomes reality), this refinancing market will have a European size. The XX Bank must immediately start to develop skills that do not yet exist, in order to be recognized as a notable operator on the European market.

Another activity should be deeply affected by the founding of the single currency, i.e. that of banking correspondent. As the national currencies could not be exported, banks playing the role of correspondents used so far to be making the conversions of the funds into foreign currencies. Important profits have been generated thanks to these activities, connected with the reassuring process of the exchanges. In the future, they can come from the reassuring process of the exchanges linked to the non-European currencies.

Most affected are the trades linked to changes and rates. As a result, banks will have to find new markets, less traditional ones and assert their strategy and their position within larger (and maybe more stable) markets.

Repercussions in terms of management costs will also have to be provided for: huge cuts of management costs associated with the setting up of market rooms in European countries are

expected. Indeed, the representation of the XX Bank should be reinforced on the London and Frankfurt markets, while the market rooms of the other countries of the Union are likely to disappear.

As far as the reassuring of the bank on certain operations is concerned, it is an international operation carried out by branches which systematically takes opposite positions on the monetary market to diminish the risks inherent in operations made in foreign currencies.

The customers of the XX Bank for the hedging operations are other banks (generally international banks) for about 70%. That is mainly because of the speculative character of the market.

The structure of the portfolio has changed very little since the end of the 1980s. Yet it is to be noticed that some exporting small and medium-sized firms of the industrial sector have been increasingly resorting to 'by-products' for three to four years. In that way, those small and medium-sized firms are making a growing number of exchange swaps. On the other hand, for more recent, so-called second generation products – more complex ones – the customers remain essentially big accounts (very large companies and banks). Here again it is to be noticed that certain products are beginning to be used by a few firms (large-scale firms) and a few banks; it is notably the case of 'barrier options' or 'margin options' (the premium paid is lower and the possible variation of the quotation is controlled).

Company A

Sector of activity: iron and steel industry
Turnover: FF 1.5 billion (total domestic production)
Of which exports: FF 500 million (33% of the turnover)
Value of imports: FF 300 million
Number of people employed: 700

The company handles the foreign exchange through an exclusive 'bank': the head office (Y group).

Foreign trade

Distribution of exports/imports and of the exchange currencies in use

Distribution of exports: 95% of exports towards Western Europe and remaining 5% towards the USA.

The structure of imports is notably different: indeed 60% of the imports are coming from Western Europe and 40% from the rest of the world. Eighty percent of the transactions are made in French francs (with another subsidiary) and 20% in US dollars. The currencies used for the imports are more various: 33% in Italian lira, 40% in Scandinavian currencies, 20% in Dutch guilders.

Foreign-based production facilities and sales offices: The company has several foreign-based production facilities and sales offices (mainly in Europe).

Corporate strategy

Important strategic lines

(a) Geographical reorientation of exports to countries with more stable exchange rates: company A is planning to set up a commercial unit in Germany, and they are thinking of setting up units in South-East Asia in a more or less near future.
(b) Financial hedging measures.
(c) In-house measures.

Foreign currency fluctuations whose impact is important: ERM currencies, non-ERM EU currencies, US dollar.

Evolution of hedging strategy and choice of hedging instruments: Hedging is systematic and is carried out at the latest with order. Thus, for exports there is a six-month delay until the currencies are cashed, whereas for imports, that delay is shortened to two months (buying of currencies dealt in for the account and payment of the suppliers). This policy is common to all the companies of the Y group: yet it must be underlined that the rate risks are today hedged in a decentralized way by all the subsidiaries (they used to be done directly by the head office). The treasury division practically does not take any speculative positions and does not make any profit: it accompanies the sellers. These hedging positions are carried out by the Y group market office (which consists of four persons, three of them being operators).

Instruments: They are 100% classical instruments (forward exchange transactions): these classical instruments fit with the volumes of transactions at company A.

Hedging EU currencies: A fairly important part of the exports (about a third; and the main competitor is Italian) is carried out in Italian lira: so the change to the future single currency should rub out the negative repercussions (on the commercial and financial policies) of the strong fluctuations of the lira. The invoicing is done in national currencies and the company itself hedges the exchanges (so that it can better control the transaction and the selling price).

Transaction costs and cost of hedging

Transaction costs: The costs for intra-EU transactions have not become any cheaper, although the banks' commissions and other processing fees that accrue when exchanging EU currency into French francs have decreased.

Personnel and equipment costs: There is a specific staff for administering foreign currency transactions, and the annual personnel and equipment costs for intra-EU transactions have increased since the end of the 1980s.

Costs of hedging: The annual costs for hedging EU currencies have decreased since the end of the 1980s.

Company B

Sector of activity: iron and steel industry
Turnover: FF 28 billion (total domestic production)
Of which exports: FF 15.4 billion (55% of the turnover)
Value of imports: FF 3.5 billion
Number of people employed: 18,000

The company handles the foreign exchange through an exclusive 'bank': the head office (Y group).

Foreign trade

Distribution of exports/imports and of the exchange currencies in use

Distribution of exports: 60% of exports to Western Europe, 20% to the USA and the remaining 20% to the rest of the world.

The structure of imports is notably different: indeed 18% of the imports are coming from the USA, 18% from Western Europe (half of which from Germany) and 64% from the rest of the world. Nearly 80% of imports are invoiced in US dollar. The exports are invoiced in various currencies: 30% in French francs, 20% in US dollars, 20% in German marks, 8% in sterling, 12% in Italian lira and 10% in ECU.

Foreign-based production facilities and sales offices: The company does not have a foreign-based production facility. On the other hand, it has sales offices based in European countries (inside and outside the European common market), in the USA, Canada and in Turkey. These sales offices carry out 100% of the exports.

Corporate strategy

Important strategic lines

– In-house measures.

Foreign currency fluctuations whose impact is important: ERM currencies, non-ERM EU currencies, US dollar.

Evolution of hedging strategy and choice of hedging instruments: Hedging is systematic and is carried out at the latest with order. Thus, for the exports there is a six-month delay until the currencies are cashed, whereas for the imports that delay is shortened to two months (buying of currencies dealt in for the account and payment of the suppliers).

This policy is common to all the companies of the Y group: yet it must be underlined that the rate risks today are hedged in a decentralized way by all the subsidiaries. (They used to be done directly by the head office. This decentralization led at the beginning of the 1990s to the hiring of an operator involved only in risk management.) The treasury division practically does not take any speculative positions and does not make any profit: it accompanies the sellers. These hedging positions are carried out by the Y group market office (which consists of four persons, three of them being operators).

Instruments: They are 95% classical instruments, mainly forward exchange transactions (a few options punctually on the US dollar): these classical instruments do fit with the amount of commercial flows through the company. For greater risks (less frequent in the commercial exchanges of the company), they choose less traditional tools. The hedging has limits within the company: the risks are known every morning (based on the orders) and the positions must be balanced in the evening.

Hedging EU currencies: Eighty-five percent of the turnover is achieved in Europe, but there is neither any instrument nor any particular strategy about European currencies. The invoicing is carried out in national currencies and the company hedges the exchange risk (better control of transaction and of selling price).

Transaction costs and cost of hedging

Transaction costs: The costs for intra-EU transactions have not become any cheaper, though the banks' commissions and other processing fees that accrue when exchanging EU currency into French francs have decreased.

Personnel and equipment costs: There is a specific staff for administering foreign currency transactions, and the annual personnel and equipment costs for intra-EU transactions have increased since the end of the 1980s.

Costs of hedging: The annual costs for hedging EU currencies have decreased since the end of the 1980s.

Company C

Sector of activity: motorcar parts
Turnover: FF 5.5 billion (total domestic production)
Of which exports: FF 4.95 billion (95% of the turnover)
Value of imports: FF 500 million
Number of people employed: 5,200

C, a subsidiary of an American group, partly handles the foreign exchange: there is coordination and sharing of the risks with the head office.

Foreign trade

Distribution of exports/imports and of the exchange currencies in use

Distribution of exports: 50% of exports to Europe, 20% to the USA and the remaining 20% to Japan.

The structure of imports is notably different: 70% of the imports are coming from Europe, and 30% from the USA. 20% of exports are invoiced in US dollars, 30% in yen and the rest in European currencies (ERM countries and non-ERM EU countries).

Foreign-based production facilities and sales offices: The company has no foreign-based production facility or sales office.

Corporate strategy

Important strategic lines

(a) Geographical reorientation of imports from countries with more stable exchange rate *vis-à-vis* local currency: indeed, the problem of the exchange rate is integrated into the suppliers' choice. For example, for equal quality, a supplier in France or even in Italy will have the preference.
(b) Financial hedging measures.
(c) Strategic alliances, use of subcontractors in third countries, with lower costs of labour.

Foreign currency fluctuations whose impact is important: ERM currencies, non-ERM EU currencies, US dollars and yen. For all the credits in those currencies, hedging measures are used (forward exchange transactions, currency options, swaps, etc.).

Evolution of hedging strategy and choice of hedging instruments: The strategy of the company has changed little as to the determination and the way of facing the risk. One change only in the organization is underway: a European treasury is being set up – a function identical to that existing for the positions of C is integrated into the European pole (Europe group). This should not have any repercussion on C, apart from the carrying out of scale economies, very likely large ones; besides, this extension in the organization will make it possible to have a leverage in the analysis of the risks upon a greater number of companies. Smaller-sized companies of the group will have to think about how to approach the exchange risks, and it may require important efforts. Up to now, those companies did control the operations, but had no real treasury for lack of resources and capacities. Another approach is presently underway at the European group level, aimed at determining the risk for the whole group: they would analyse exports and imports, disregarding the borders between the different companies of the group, then would find the balance (analysis of the results relative to the fluctuations of the exchange risks) for each company and within each division (in connection with lines of products).

Instruments: The hedging instruments have not been changed: 'traditional' mix-products, that is opposite positions on the long-term or on the short-term or identical or close currencies, possibly followed by 'forward' or by currency options. In all cases, resorting to an instrument tries to be achieved according to the following rule: doubt (strong risk) will give the preference to 'by' instruments, whereas a clearer vision will lead to choosing more reliable instruments. The head office is presently thinking about and debating the possibility of systematically hedging minimal positions over a long period (at least one year).

Hedging EU currencies: European currencies have no particular specificity. The exchange risks connected to those currencies are hedged in a classical way with the same instruments as those used for other currencies. Yet, some currencies make the use of certain instruments more difficult just because of their own specificity, for example, the Italian lira whose volatility is a handicap for resorting to optional instruments.

Possible repercussions of the single market: These are not direct repercussions (the organization of the flows is not affected), but rather repercussions of a 'psychological' nature.

Change to the single currency: The problems of the exchange risks will be transferred to the outskirts (EU/rest of the world). The repercussions on the organization of the company are not really known today.

Transaction costs and cost of hedging

Transaction costs: The company does not pay bank commissions on the conversion of foreign currencies to French francs.

Personnel and equipment costs: There is a specific staff for administering foreign currency transactions; the annual personnel and equipment costs for administering intra-EU transactions have increased since the end of the 1980s.

Costs of hedging: The annual costs of managing the activity of hedging risks and variations therein since the end of the 1980s are not precisely evaluated.

Company D

Sector of activity: general public electronics
Turnover: FF 38 billion (total domestic production), more than half of the group's turnover
Of which exports: FF 36 billion (95% of the turnover)
Value of imports: FF 28.35 billion
Number of people employed: 5,000

The company itself handles the foreign exchange on both the short and the long term: since 1992, the treasury has been organized as a profit centre, and handles all the foreign exchanges for all its subsidiaries (fixation of rates covered for one year for the whole of the subsidiaries).

Foreign trade

Distribution of exports/imports and of the exchange currencies in use

Distribution of exports: 50% of exports to the USA, 30% to Europe, 10% to Canada and the remaining 10% are split between South America and Asia.

The structure of imports is different: if half of them are coming from the USA, 30% are coming from Asia, 15% from Mexico and Poland and 5% from Italy. Most of the exports and imports are invoiced in US dollars, in yen, in Canadian dollars and in various currencies of Asian countries (notably that of Malaysia).

Foreign-based production facilities and sales offices: The company has foreign-based production facilities (mainly assembly line factories) as well as sales offices in the EU (including ERM countries), the North American continent, Asia, Poland and Mexico.

Corporate strategy

Important strategic lines

(a) Increased domestic market orientation.
(b) Shifting production facilities abroad: in South-East Asia, the assembly line factories are delocated according to the rise or the fall in value of the local currencies (reasonable costs of labour).
(c) Financial hedging measures.
(d) In-house measures.

Foreign currency fluctuations whose impact is important: ERM currencies, non-ERM EU currencies, US dollars, South-East Asian currencies (Singapore, Malaysia), yen. For all credits in currencies, hedging measures are used, mostly in the form of forward exchange transactions.

Evolution of hedging strategy and choice of hedging instruments: Before 1992, the industrial and financial risks of each branch (audio, TV, video, picture tubes) were taken on and handled by every sector manager who acted for each operation as he thought best. In other words, the treasury played the role of a bank, without any real power of decision and with strong risks on the results of the company. In 1992 a centralized treasury was set up; it is a profit centre and it handles all the flows of currencies for all the subsidiaries, through rates guaranteed for a year. It is to be noted that the cover rates are fixed by the head offices within a reasonable range of variation.

This centralized treasury is based in Paris and has local taking-over offices in Singapore and Indianapolis. This transfer of the management of the exchange risks from the subsidiaries to the treasury has enabled the subsidiary to increase their results considerably.

Staff: Treasury staff: ten persons in Paris, five in Singapore and four in Indianapolis.

Instruments: There is neither any clearly defined hedging strategy nor preferential instrument: yet most hedging operations consist in purchase on credit and sale for the account contracts, rather than possible swaps. For positions considered more 'strategic' or risky, currency options are used.

New products are more and more sophisticated. The so-called 'second generation' currency options are based on complicated mathematical models, making it difficult to analyse the risk linked to those products. In fact, these new products are not necessarily adapted and do not generally reduce the exchange risk. The company often turns to traditional, more flexible products.

Hedging EU currencies: The hedging instruments are identical to those used for other currencies. Naturally, there are more reliable currencies for which the handling is much more 'mechanical'.

Possible repercussions of the single market: It should give Italy and Spain the possibility to have a liberalization of the flows of currencies between a head office and its subsidiaries; in fact up to now these flows of currencies were assimilated to loans, submitted to taxation (withholding taxes).

Change to the single currency: A simplification, more reliability and savings are expected (lower hedging costs).

Transaction costs and cost of hedging

Transaction costs: The costs for intra-EU transactions have not become any cheaper, though the banks' commissions and other processing fees that accrue when exchanging EU currency into French francs have decreased.

Personnel and equipment costs: There is a specific staff for administering foreign currency transactions; the annual personnel and equipment costs for administering intra-EU transactions have increased since the end of the 1980s.

Costs of hedging: The annual costs for hedging EU currencies have decreased since the end of the 1980s.

Company E

Sector of activity: leather work
Turnover: FF 823 million (total domestic production)
Of which exports: FF 600 million
Value of imports: FF 120 million
Number of people employed: 1,400

The company itself, a subsidiary of a multinational group, handles the foreign exchange.

Foreign trade

Distribution of exports/imports and of the exchange currencies in use

Distribution of exports: nearly 60% of the exports go to EU countries (mainly Germany, Italy and the UK), 10% to the other countries of Western Europe, the USA and Japan, and 30% to the rest of the world.

The structure of imports is nearly the same: the main difference is that there are no imports coming from the UK, the USA and Japan.

About 70% of exports are invoiced in DM, French francs, US dollars and sterling. Most of the imports are invoiced in US dollars, 20% in Italian lira, 20% in DM and 10% in French francs.

Foreign-based production facilities and sales offices: The company has foreign-based production facilities in the USA, in China and inside the ERM countries, as well as sales offices in the USA, within the ERM and in other countries of the EU.

Corporate strategy

Important strategic lines

(a) Shifting production facilities abroad: four years ago, the whole production was shifted to South-East Asia.
(b) Financial hedging measures.
(c) In-house measures.
(d) Use of subcontractors in third countries.

Foreign currency fluctuations whose impact is important: ERM currencies, non-ERM EU currencies, US dollar. The hedging instruments are used for credits in European currencies (ERM currencies and non-ERM EU currencies) up to 80% of their amount.

Evolution of hedging strategy and choice of hedging instruments: It has considerably changed since the end of the 1980s, along with the notable increase of the company turnover (which

grew from FF 400 to 900 million; between 1985 and 1990, notably thanks to the development of companyE abroad). Since the beginning of the 1990s, the aim is to hedge the exchange risks as well as possible by choosing the most suitable instrument. Thus there is a 'budget rate', which must be consistent with the 'spot rate' (daily rate).

Company E does not in practice hedge the exchange risks for over a year. Thus, it remains rather fluid in relation to the market. It does not practice five-year hedging, wanting to be as close to the reality of the economy as possible. Up to the end of the 1980s, the financial hedging against the exchange risk was only handled whenever they found it appropriate; today it is systematic.

Instruments: The instruments used vary according to the currencies concerned and the goals that the company has set itself on those currencies before. For three or four years there have been 'leader currencies' (US dollar, DM, Italian lira): for the US dollar, the company resorts to currency options; for the others it resorts to the Coface (French Insurance Company of International Trade).

Today, traditional options and blocking options are preferred, or credit operations if rates are satisfactory. Overall, opinion on these hedging instruments is positive: globally, they are well-adapted to the company's needs. However, the company does not envisage moving to more sophisticated instruments ('second generation' options).

Hedging EU currencies: Since 1992 and the crisis of the EMS, the attitude of the company has changed notably: indeed from 1987 to 1992, the stability of the system was remarkable and nothing seemed to be able to upset it.

From 1992 on, resort to hedging measures has become more systematic, mainly concerning three currencies considered more risky: the Italian lira, sterling and, to a smaller extent, the DM. For the DM, forward exchange transactions are frequently used (the rate is more satisfactory), whereas for the Italian lira and sterling, barrier options are preferential (more speculative and more risky products). Thus, the Italian lira and sterling have joined the US dollar and the yen in terms of the way they are hedged.

Transaction costs and cost of hedging

Transaction costs: The costs for intra-EU transactions have not become any cheaper, though the banks' commissions and other processing fees that accrue when exchanging EU currency into French francs have decreased.

Personnel and equipment costs: There is a specific staff for administering foreign currency transactions; the annual personnel and equipment costs for administering intra-EU transactions have increased since the end of the 1980s.

Costs of hedging: The annual costs for hedging EU currencies have increased since the end of the 1980s.

Company F

Sector of activity: agricultural machinery
Turnover: FF 1.88 billion (total domestic production)
Of which exports: FF 1.42 billion
Turnover of foreign-based production facilities: FF 494 million
Value of imports: FF 945 million
Number of people employed: 771

The company, a subsidiary of a multinational group, handles the foreign exchange itself.

Foreign trade

Distribution of exports/imports and of the exchange currencies in use

Distribution of exports: nearly one-third of exports go to the UK, 10% to the USA and Japan, and the remaining 47% to the countries of Western Europe (including EU countries).

The structure of imports is quite different: 36% of imports come from Italy, 33% from the UK, 13% from Germany, and the remaining 18% come mainly from Western Europe, the USA and Japan. About 30% of exports are invoiced in sterling, 20% in French francs, 23% in DM, 10% in US dollars and 18% in other currencies.

Thirty-four percent of imports are invoiced in French francs, 26% in sterling, 16% in Italian lira, 13% in DM, 2% in US dollars and the remaining 10% in other currencies.

Foreign-based production facilities and sales offices: The company has foreign-based production facilities in the ERM and in the non-ERM EU countries, as well as sales offices in the USA, within the ERM and in other countries of the EU.

Corporate strategy

Important strategic lines

(a) Financial hedging measures.
(b) In-house measures.

Foreign currency fluctuations whose impact is important: ERM currencies, EU non-ERM currencies, US dollar. The hedging instruments are used for credits in those currencies up to 80% of their amount.

Evolution of hedging strategy and choice of hedging instruments: It has not changed since the end of the 1980s. The company has still been using 'natural' hedging measures: this means that the suppliers are asked to invoice in a specific currency. When they export, for example, to Spain, they try to find an agreement with the customer to invoice in pesetas. This strategy is easy to implement within an international group and makes it possible to limit the exchange risk inside all the countries. The positions hedged are known (in a balance sheet): in other words, there is no hedging on the orders. Each month, the treasurer has to forecast the exchange rates. Then those positions are hedged with forward exchange transactions.

This strategy was defined by the head office, and each month, the treasurer sends a report of his previous positions. Though more sophisticated measures (such as first or second generation currency options) could be used (they could also be much more efficient), the company hedges the exchange risks with very classical instruments.

Instruments: The instruments used are quite classical: the only 'artificial' hedging measures used are forward exchange transactions. The head office is not in favour of sophisticated instruments such as first or even second generation currency options.

Hedging EU currencies: The hedging instruments are identical to those used for other currencies.

Change to the single currency: Simplification, more reliability and savings are expected (lower hedging costs).

Transaction costs and cost of hedging

Transaction costs: The costs for intra-EU transactions have not become any cheaper, though the banks' commissions and other processing fees that accrue when exchanging EU currency into French francs have decreased.

Personnel and equipment costs: There is a specific staff for administering foreign currency transactions; the annual personnel and equipment costs for administering intra-EU transactions have decreased since the end of the 1980s.

Costs of hedging: The annual costs for hedging EU currencies have decreased since the end of the 1980s.

Company G

Sector of activity: electronic semi-components
Turnover: FF 4.7 billion (total domestic production)
Of which exports: FF 3.196 billion (33% of the turnover)
Turnover of foreign-based production facilities: FF 1.55 billion
Value of imports: FF 2.1 billion
Number of people employed: 2,300

The company, a subsidiary of a multinational group, handles the foreign exchange.

Foreign trade

Distribution of exports/imports and of the exchange currencies in use

Distribution of exports: 85% of the exports go the countries of Western Europe (Germany, the UK, Ireland and other countries of Western Europe), 5% to the USA, 5% to Japan, and 5% to the rest of the world.

The structure of imports is rather different: 30% of imports come from the USA and 70% from the rest of the world. Exports as well as imports are invoiced in US dollars.

Foreign-based production facilities and sales offices: The company has foreign-based production facilities, as well as sales offices in the USA, in Europe and even in Asia (China and Japan especially).

Corporate strategy

Important strategic lines

(a) Financial hedging measures.
(b) Reorientation of exports to countries with more stable exchange rates *vis-à-vis* local currencies: in that case, another subsidiary in the group runs the risk.
(c) Increased invoicing in US dollars, even in European countries.

Foreign currency fluctuations whose impact is important: ERM currencies, non-ERM EU currencies, US dollars.

Evolution of hedging strategy and choice of hedging instruments: Until recent years, the company used the netting of foreign currencies assets and liabilities as a hedging measure. Since the beginning of the 1990s, only forward exchange transactions have been used. In the same time, the treasury department, without increasing its staff, has focused on analysis and forecast (monitoring) in order to improve the quality of information.

The aim is to hedge without loss or profit (as neutral as possible). The treasury is a centre of profit, but does not take any speculative position.

Results are reviewed monthly: the system makes it possible to better gauge the flows between companies; positions are adjusted up or down five working days before the end of the month. The positions are as neutral as possible, country by country.

Instruments: The instruments used are quite classical; more sophisticated instruments, such as first or even second generation currency options, are never used for two main reasons: on the one hand, the company prefers not to take part in a complex system whose induced risks are less known, and on the other hand, because of the rather stable nature of the flows.

Hedging EU currencies: The hedging instruments are identical to those used for other currencies.

Change to the single currency: At present, there is no real demand felt in regard to this currency; the company has not yet undertaken an in-depth study on the subject and remains sceptical. In particular, the lack of a unified tax structure is regrettable, as this factor may cancel out any positive effects of the single currency.

Transaction costs and cost of hedging

Transaction costs: The costs for intra-EU transactions are not well known, nor are the banks' commissions and other processing fees that accrue when exchanging EU currency into French francs.

Personnel and equipment costs: There is a specific staff for administering foreign currency transactions; the annual personnel and equipment costs for administering intra-EU transactions have not changed since the end of the 1980s.

Costs of hedging: The annual costs for hedging EU currencies have decreased since the end of the 1980s.

Company H

Sector of activity: manufacture of photocopiers – office equipment broker
Turnover: FF 600 million (total domestic production
Of which exports: FF 450 million (75% of the turnover)
Value of imports: FF 1 billion
Number of people employed: 750

The company, a subsidiary of a Japanese group, handles the foreign exchange itself.

Foreign trade

Distribution of exports/imports and of the exchange currencies in use

Distribution of exports: 50% of exports to Germany, 30% to the UK and 20% to the rest of the world.

Distribution of imports: half of them are coming from Germany, but 40% are coming from Japan and 10% from the UK.

Sixty percent of exports and imports are invoiced in French francs, 25% in sterling, and 15% in US dollars, whereas 95% of imports are invoiced in French francs and 5% in other currencies.

Foreign-based production facilities and sales offices: The company has neither foreign-based production facilities nor sales offices.

Corporate strategy

Important strategic lines: financial hedging measures.

Foreign currency fluctuations whose impact is important: ERM currencies, non-ERM EU currencies, US dollars and yen.

Evolution of hedging strategy and choice of hedging instruments: Changes are closely related to the increase of foreign exchange (import/export) experienced by the company as of the early 1990s. The years 1990–95 were also marked by growth in European trade (to the detriment of Asia).

The other characteristic of the company's international exchanges, which has affected its commercial strategy, is that 95% of the exchanges takes place with other group companies. Thus, exchange is examined in regard to the whole group.

As of 1990–92, production units were set up in France: they are dedicated to supplying all of the Group's demand for certain product lines, and have made it possible to set up other production units elsewhere in Europe. For this reason, certain supply sources are concentrated in Europe. As these units have grown stronger in France, trade relations with the UK and Germany have grown too.

In consideration of these factors, three main periods in exchange risk management can be identified:

(a) the period just before the 1990s (prior to the establishment of industrial units in Europe), when risk management was entirely centralized, controlled by the parent company in Japan;
(b) the period 1990–93: under the effects of intensified exchange among European subsidiaries, exchange risk management was transferred (producing countries in the currency of the purchaser);
(c) since 1993, and for certain activities only, it is now considered usual for the exchange rate risk to be shared by the seller and the purchaser. The company carries out transfer price adjustments as a function of the variations in the exchange rate (indexing of transfer prices). Prices are calculated as a function of revised par rates of exchange every six months (budget rate established for six months): they are adjusted every month in relation to the actual currency rates.

Instruments: The instruments used have also changed: though they remain quite classical (forward exchange transactions), currencies options (of first and even second generation) are used more and more.

Hedging EU currencies and change to the single currency: At present, the majority of trade is carried out in DM and sterling. Although sterling is more volatile (and therefore calls for heavy risk hedging), the set-up of a single currency should not significantly change the company's risk-hedging strategy.

Transaction costs and cost of hedging

Transaction costs: The costs for intra-EU transactions are not well known, nor are the banks' commissions and other processing fees that accrue when exchanging EU currency into French francs.

Personnel and equipment costs: There is a specific staff for administering foreign currency transactions; the annual personnel and equipment costs for administering intra-EU transactions have not changed since the end of the 1980s.

Costs of hedging: The annual costs for hedging EU currencies have increased since the end of the 1980s. In addition, as risk-hedging activity has increased, that increase has been taken into account and is reflected in company sales prices.

Company I

Sector of activity: knit fabrics and hosiery manufacturer
Turnover: FF 1.846 billion (total domestic production)
Of which exports: FF 726 million (40% of the turnover)
Value of imports: FF 198 million
Number of people employed: 3,806

The head office handles the foreign exchange on behalf of all the subsidiaries.

Foreign trade

Distribution of exports/imports and of the exchange currencies in use

Distribution of exports: 70% to Europe (of which 27% to Italy, 11% to Germany, 10% to other EC countries, 9% to Belgium, 9% to other countries of Western Europe, 2% to Spain and 2% to the UK), 28% to the rest of the world, and 2% to the USA.

The structure of imports is rather different: 70% of imports come from the rest of the world, 24% come from Western Europe (of which 10% from Italy, 5% from Germany, 7% from other Western European countries and 2% from Spain) and 6% come from the USA.

Eighty percent of exports are invoiced in French francs, 11% in DM, 7% in other currencies and 2% in US dollars. Eighty-five percent of imports are invoiced in French francs, 6% in US dollars, 5% in other currencies and 4% in DM.

Foreign-based production facilities and sales offices: The company has foreign-based production facilities (in Northern Africa), as well as sales offices in the EC countries and in the USA.

Corporate strategy

Important strategic lines

(a) Financial hedging measures.
(b) Shifting production facilities abroad: in fact, the choices for locating a facility are made not only in regard to exchange risks but also in terms of an overall 'country risk', which may be calculated, in part, through the exchange rate risk.

Foreign currency fluctuations whose impact is important: ERM currencies, non-ERM EU currencies, US dollars and yen.

Evolution of hedging strategy and choice of hedging instruments: Until recently, most exports and imports were invoiced in French francs. Operations involving risk hedging did not become commonplace until the mid-1990s. However, the company is trying to encourage invoicing in French francs, for both imports and exports (more than 80% of imports and exports are currently invoiced in French francs). The company does not systematically hedge all transactions: rates for hedging exchange risks vary according to currencies and amounts. Some currencies are 'easier' to hedge, because they are in greater demand: the US dollar is an example. To improve the quality of hedging operations, the company has developed an accounting and tax analysis section.

Finally, the treasury presently employs three people: the financial director, an accountant and an assistant; all spend some time, occasionally, on managing exchange risks.

Instruments: The instruments used are quite classical (forward exchange transactions), but currencies options (of first generation) are sometimes used. In addition, credit operations are

better adapted to certain currencies, such as the Italian lira. Options are little used, because of their cost and because they are considered difficult to manage.

Hedging EU currencies and change to the single currency: Before 1992, the company did not hedge transactions in EMS currencies. Since 1992, the hedging policy has become much stricter and more systematic, in particular for certain currencies which are less stable (the peseta and the Italian lira).

Transaction costs and cost of hedging

Transaction costs: The costs for intra-EU transactions are not well known, nor are banks' commissions and other processing fees that accrue when exchanging EU currency into French francs.

Personnel and equipment costs: There is a specific staff for administering foreign currency transactions; the annual personnel and equipment costs for administering intra-EU transactions might have increased since the end of the 1980s.

Costs of hedging: The annual costs for hedging EU currencies have increased since the end of the 1980s.

II.3. Synthesis

Adapting companies to exchange risks

Generally, within companies, the management of risks associated with currency exchange has become a distinct management field of activity. Starting in the early 1990s the approach to risk management became more organized and systematic. In 1994, a number of companies were hard hit by the fall of the US dollar: in fact, they had decided not to hedge on exchange rates in response to the dollar's expected rise as predicted by economists.

It is reasonable to assume that this movement is a 'natural' reaction by companies in the face of the increased instability of exchange rates and markets. The problems linked to monetary fluctuations are of serious concern to French companies, as nearly half of their export trade is handled in other currencies.

In fact, companies which are heavily involved in import/export have been and remain subject to sometimes sudden exchange rate fluctuations. Their reaction has been to increase in-house awareness of the concept of hedging on rates, to build stronger teams to work on the issue, or even to employ an agent working solely on the matter of exchange risks.

It would appear that the use of hedging instruments is much more developed in large and very large companies. This is confirmed by the survey, which shows that nearly 57% of companies employing more than 500 people use this type of instrument.

Generally, the use of financial instruments to hedge on currency appears to be proportional to the intensity of the company's import-export activity: as this activity increases, so does the use of such instruments, thus forming an important aspect of corporate strategy.

Delegation of management

Some companies now handle their treasury as a separate entity and profit centre; in this case, the treasury acts as a service provider to the rest of the company, and assumes the responsibility for taking speculative risks. There are also 'in-between' situations where risk is shared, for example, by subsidiaries and the parent company.

In regard to this idea of 'a speculative position', caution is called for. Given the speed at which information now travels, any position can be considered 'speculative' in so far as the risk is not hedged with fast-acting remedies. Furthermore, the borders which define speculation are hazy at best. Officially, in any case, treasuries which are not profit centres are not involved in speculation; they only hedge currency risks, without seeking to generate financial advantages.

The instruments used

Recourse to 'complex tools' (first and second generation options, in particular) for hedging currency risk does not appear to be related to the intensity of import/export, nor to the share of turnover generated by exports.

Indeed, it would seem that the choice of instrument is made, more generally, in relation to the company's attitude towards exchange risks and its outlook, rather than to the prevailing practices in a particular sector or branch. It is also determined by corporate officers, the attitude of those in charge of treasury and the margins of manoeuvre available to them. Thus, there is sometimes internal resistance to the use of certain hedging tools. This is confirmed by the quantitative survey which reveals but few sectoral specificities in regard to preferred use of any instrument or instruments.

The instruments used remain, despite the wide possibilities and growing sophistication of such tools, rather 'traditional'; often they involve purchase on credit and sale for the account contracts. Some options are used, especially those known as 'first generation', but more complex options are used less frequently: companies hesitate to turn to them because they seem to involve risks which are not yet fully understood. In addition, they are not always adapted to more volatile currencies (such as the Italian lira).

Yet it should be noted that very large companies which have their own market teams or operate their treasury as a profit centre are using effective tools more and more (blocking options).

Since 1992, Coface has been offering a guarantee for import/export companies of ordinary goods: this guarantee, which is similar to other types of insurance, is mostly used by small and medium-sized companies (90% of its clientele).

Integration in commercial and industrial policy

Today, recourse to hedging instruments is almost systematic in companies which import and export on a massive scale, many of which have encountered serious financial difficulties. This recourse to hedging instruments often goes along with changes in industrial policy: some companies can integrate the exchange risk factor into their choice of foreign suppliers; they can also choose to move their production centres into countries with low currency risk levels and, in particular, with low labour costs, and they can sign subcontracting agreements with companies in these same countries.

Management of European currencies

European currencies do not have a particularly specific nature: exchange risks associated with these currencies are hedged in the same manner as risks on others (such as the US dollar, the Japanese yen, etc.). Clearly, certain instruments are better adapted to certain currencies: for example, recourse to optional instruments is not possible with the Italian lira, which is subject to wild fluctuations.

Moving to a single currency

Although not all companies view the proposed single European currency in the same way, all predict that in this event currency hedging will cost them less money, and suppose that the single currency will contribute to a global stabilization of the exchange market. Today it would appear that most companies are not yet aware of the concrete repercussions of a single currency in Europe.

The same is not true for banks, which have already begun in-depth consideration of the consequences of a single currency in regard to their internal organization and strategy. Indeed, certain job positions which are related to hedging risks on the European currency exchange market will probably disappear, and others will change significantly. In addition, French banks, at present in a slump, must find solutions to their financial problems while setting up a strategic position on the future, deregulated, European market. In banking, the issue has been studied in depth and the banking sector would be much relieved if companies would look deeper into the ramifications as well, for the single currency issue is one which will have strong effects on their strategy and organization.

Direct and indirect costs

In general, companies have only an imprecise notion of the direct costs linked to the use of instruments for hedging exchange risks, or the indirect costs associated with measures tied to hedging those same risks. A significant proportion of companies found it difficult to respond to questions of costs, especially those related to employees. In addition, these supplementary follow-up interviews revealed certain contradictions in regard to employee-related costs, with responses indicating stagnation or reduction of costs, whereas the management team working on hedging had picked up activity. Some companies assign treasury personnel to work in this area, making risk hedging one of many activities (and difficult to distinguish separately as such).

APPENDIX II.A French tables

Table I.1.1. Exports of responding firms in France

Sectors	Responding firms		Exports of responding firms		Exports according to official statistics**	
	Number	In %[1]	Million FF	In %[2]	Million FF	In % of total exports
			1994		1994	
Basic materials industry	39	9.73	21,898	10.61	167,941	14.37
Iron, steel and non-ferrous metals industry	16	3.99	18,323	8.87	60,606	5.19
Mechanical engineering, electrical and automobile industries	123	30.67	64,295	31.14	462,992	39.62
Processing industry	87	21.70	17,833	8.64	102,284	8.75
Mining	0	0.00	0	0.00	7,451	0.64
Food, beverages and tobacco industry	46	11.47	26,356	12.76	131,220	11.23
Total industry	311	77.56	148,706	72.02	932,494	79.80
Building and construction	13	3.24	466	0.23	0	0.00
Services	77	19.20	57,319	27.76	235,996	20.20
Total	401	100.00	206,491	100.00	1,168,490	1.0000

[1] Of all responding firms.
[2] Of total exports of all responding firms.
** EAE SESSI 1995 (> 20 employees) + INSEE National Accounts for Food, Building and Services

Table I.1.2. Value of output of responding firms in France

Sectors	Responding firms		Value of output of responding firms		Value of output according to official statistics**	
	Number	In % [1]	Million FF	In % [2]	Million FF	In % of total output
			1994		1994	
Basic materials industry	39	9.73	74,984	11.78	640,434	5.18
Iron, steel and non-ferrous metals industry	16	3.99	37,164	5.84	138,807	1.12
Mechanical engineering, electrical and automobile industries	123	30.67	156,321	24.55	1,290,276	10.43
Processing industry	87	21.70	72,779	11.43	617,665	4.99
Mining	0	0.00	0.00	0.00	42,259	0.34
Food, beverages and tobacco industry	46	11.47	68,767	10.80	630,926	5.10
Total industry	311	77.56	410,015	64.40	3,360,367	27.16
Building and construction	13	3.24	6,923	1.09	796,428	6.44
Services	77	19.20	219,733	34.51	8,217,063	66.40
Total	401	100.00	636,671	100	12,373,858	100

[1] Of all responding firms.
[2] Of total output (turnover from domestic production) of all responding firms.
[3] Gross output, not value added.
** EAE SESSI 1995 (> 20 employees) + INSEE National Accounts for Food, Building and Services

Table I.1.3. Employment by responding firms in France

Sectors	Responding firms		Employees of responding firms		Employees according to official statistics**	
	Number	In % [1]	Employees (1,000)	In % [2]	Employees (1,000)	In %
			1994		1994	
Basic materials industry	39	9.73	61	11.65	369	1.85
Iron, steel and non-ferrous metals industry	16	3.99	28	5.23	114	0.57
Mechanical engineering, electrical and automobile industries	123	30.67	170	32.33	1,249	6.27
Processing industry	87	21.70	42	7.90	813	4.08
Mining	0	0.00	0	0.00	48	0.24
Food, beverages and tobacco industry	46	11.47	43	8.10	551	2.77
Total industry	311	77.56	343	65.21	3,145	15.80
Building and construction	13	3.24	8	1.53	1,472	7.39
Services	77	19.20	175	33.26	15,292	76.81
Total	401	100.00	526	100.00	19,909	100

[1] Of all responding firms.
[2] Of total employees of all responding firms.
** EAE SESSI 1995 (> 20 employees) + INSEE National Accounts for Food, Building and Services

Table I.1.4. Comparison of export shares[1] of responding firms, and of the total economy and its sectors in France

Export shares	Export shares of responding firms in given sectors and for all responding firms, %	Sectoral export shares and the export share of the total economy according to official statistics, %
Sectors	1994	1994
Basic materials industry	29.20	26.22
Iron, steel and non-ferrous metals industry	49.30	43.66
Mechanical engineering, electrical and automobile industries	41.13	35.88
Processing industry	24.50	16.56
Mining	0.00	17.63
Food, beverages and tobacco industry	38.33	20.80
Total industry	36.27	27.75
Building and construction	6.73	0.00
Services	26.09	2.87
Total	32.43	9.44

[1] Exports as a % of total turnover from domestic production.

Table I.1.5. Distribution of exports and imports in France, 1994

Trade	Responding firms		According to official statistics*	
Regions	Exports	Imports	Exports	Imports
EUR-12 total	40.5	33.0	60.6	59.5
Belgium/Luxembourg	3.4	3.9	8.8	9.1
France	0.0	0.0	0.0	0.0
Germany	14.4	13.4	17.1	17.8
Ireland	0.3	0.2	0.6	1.2
Italy	6.6	6.7	9.4	10.1
Netherlands	3.1	2.0	4.6	5.0
Spain	3.3	1.4	7.1	6.1
UK	6.8	4.1	9.9	8.0
Other West European countries	4.4	5.9	6.1	5.3
USA	15.4	24.3	7.0	8.5
Japan	4.6	10.1	2.0	3.7
Rest of world	35.1	26.6	24.3	23.0
Total	100	100	100	100

* DGDDI (Douanes) + INSEE.

Table II.1.1. Characteristics of responding firms in France (by firm size – number of employees)

Employees / Sectors	All responding firms		Micro firms: up to 10 employees		Small firms: 10 to 99 employees		Medium-sized: 100 to 499 employees		Large firms: 500 and more employees	
	No. of firms	In %	No. of firms	In % [1]	No. of firms	In % [1]	No. of firms	In % [1]	No. of firms	In % [1]
Basic materials industry	39	100	0	0	6	15.38	12	30.77	21	53.85
Iron, steel and non-ferrous metals industry	16	100	0	0	0	0.00	10	62.50	6	37.50
Mechanical engineering, electrical and automobile industries	123	100	0	0	6	4.88	28	22.76	89	72.36
Processing industry	87	100	0	0	6	6.90	45	51.72	36	41.38
Mining	0	100	0	0	0	0.00	0	0.00	0	0.00
Food, beverages and tobacco industry	46	100	0	0	0	0.00	22	47.83	24	52.17
Total industry	311	100	0	0	18	5.79	117	37.62	176	56.59
Building and construction	13	100	0	0	0	0.00	8	61.54	5	38.46
Services	77	100	0	0	4	5.19	16	20.78	57	74.03
Total	401	100	0	0	22	5.49	141	35.16	238	59.35

[1] As a % of the total number of firms in each sector.

Table II.1.2. Characteristics of responding firms in France (by export share [1])

Export share / Sectors	All responding firms		Up to 24%		25-49%		50-100%	
	Number of firms	In %	Number of firms	In % [1]	Number of firms	In % [2]	Number of firms	In % [2]
Basic materials industry	39	100	23	58.97	6	15.38	10	25.64
Iron, steel and non-ferrous metals industry	16	100	3	18.75	6	38	7	43.75
Mechanical engineering, electrical and automobile industries	123	100	34	27.64	42	34.15	47	38.21
Processing industry	87	100	47	54.02	20	22.99	20	22.99
Mining	0	100	0	0	0	0	0	0
Food, beverages and tobacco industry	46	100	29	63.04	7	15.22	10	21.74
Total industry	311	100	136	43.73	81	26.05	94	30.23
Building and construction	13	100	12	92.31	1	7.69	0	0
Services	77	100	53	68.83	17	22.08	7	9.09
Total	401	100	201	50.12	99	24.69	101	25.19

[1] Exports as a % of total turnover from domestic production.
[2] As a % of the number of responding firms in each sector.

Table II.1.3. Characteristics of responding firms in France (by import share [1])

Import share / Sectors	All responding firms		Up to 24%		25-49%		50-100%	
	Number of firms	In %	Number of firms	In % [1]	Number of firms	In % [2]	Number of firms	In % [2]
Basic materials industry	39	100	32	82.05	5	12.82	2	5.13
Iron, steel and non-ferrous metals industry	16	100	12	75	2	13	2	12.50
Mechanical engineering, electrical and automobile industries	123	100	98	79.67	15	12.20	10	8.13
Processing industry	87	100	73	83.91	11	12.64	3	3.45
Mining	0	100	0	0	0	0	0	0
Food, beverages and tobacco industry	46	100	40	86.96	5	10.87	1	2.17
Total industry	311	100	255	81.99	38	12.22	18	5.79
Building and construction	13	100	13	100	0	0	0	0
Services	77	100	61	79.22	10	12.99	6	7.79
Total	401	100	329	82.04	48	11.97	24	5.99

[1] Imports as a % of total turnover from domestic production.
[2] As a % of the number of responding firms in each sector

Table II.2.1a. Invoicing practices in France (exports)

Currencies / Sectors	Number of responding firms	% of responding firms					
		Local currency [1]		DM	US dollar	British pound	Others
		Less than 100%	100%				
Basic materials industry	39	82.05	17.95	53.85	30.77	28.21	56.41
Iron, steel and non-ferrous metals industry	16	100.00	0.00	81.25	62.50	43.75	81.25
Mechanical engineering, electrical and automobile industries	123	73.17	22.76	41.46	48.78	24.39	38.21
Processing industry	87	70.11	25.29	47.13	31.03	31.03	54.02
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	80.43	15.22	54.35	30.43	28.26	63.04
Total industry	311	75.88	20.58	48.55	39.55	28.30	50.80
Building and construction	13	38.46	38.46	15.38	7.69	7.69	15.38
Services	77	61.04	18.18	29.87	25.97	20.78	41.56
Total	401	71.82	20.70	43.89	35.91	26.18	47.88

[1] ND = 30.

Table II.2.1b. Invoicing practices in France (exports)

Currencies / Number of employees	Number of responding firms	% of responding firms					
		Local currency [1]		DM	US dollar	British pound	Others
		Less than 100%	100%				
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	68.18	22.73	36.36	27.27	0.00	31.82
200 to 999	141	68.79	26.95	41.84	25.53	19.86	44.68
1000 and above	238	73.95	16.81	45.80	42.86	32.35	51.26
Total	401	71.82	20.70	43.89	35.91	26.18	47.88

[1] ND = 30

Table II.2.2a. Invoicing practices in France (imports)

Currencies / Sectors	Number of responding firms	% of responding firms					
		Local currency[1]		DM	US dollar	British pound	Others
		Less than 100%	100%				
Basic materials industry	39	71.79	5.13	38.46	35.90	20.51	41.03
Iron, steel and non-ferrous metals industry	16	75.00	18.75	62.50	18.75	12.50	37.50
Mechanical engineering, electrical and automobile industries	123	74.80	8.94	56.91	43.90	22.76	52.03
Processing industry	87	78.16	10.34	36.78	35.63	13.79	54.02
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	56.52	15.22	26.09	17.39	13.04	47.83
Total industry	311	72.67	10.29	44.69	35.37	18.01	49.84
Building and construction	13	38.46	38.46	23.08	15.38	7.69	15.38
Services	77	63.64	11.69	27.27	35.06	14.29	49.35
Total	401	69.83	11.47	40.65	34.66	16.96	48.63

[1] ND = 75.

Table II.2.2b. Invoicing practices in France (imports)

Currencies / Number of employees	Number of responding firms	% of responding firms					
		Local currency[1]		DM	US dollar	British pound	Others
		Less than 100%	100%				
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	68.18	13.64	36.36	27.27	4.55	40.91
200 to 999	141	61.70	17.73	31.21	20.57	10.64	41.13
1000 and above	238	74.79	7.56	46.64	43.70	21.85	53.78
Total	401	69.83	11.47	40.65	34.66	16.96	48.63

[1] ND = 75.

Table II.3.1a. Characteristics of responding firms in France (by production facilities abroad[4]

Regions / Sectors	Number of responding firms	Facilities in ERM countries	Facilities in EU/non-ERM countries	Facilities in USA	Facilities elsewhere
		% of responding firms			
Basic materials industry	39	15.38	7.69	10.26	10.26
Iron, steel and non-ferrous metals industry	16	18.75	6.25	6.25	6.25
Mechanical engineering, electrical and automobile industries	123	19.51	12.20	12.20	12.20
Processing industry	87	39.08	4.60	3.45	12.64
Mining	0	0	0	0	0
Food, beverages and tobacco industry	46	13.04	10.87	8.70	13.04
Total industry	311	23.47	9.00	8.68	11.90
Building and construction	13	30.77	0.00	0.00	15.38
Services	77	16.88	6.49	5.19	11.69
Total	401	22.44	8.23	7.73	11.97

Table II.3.1b. Characteristics of responding firms in France (by production facilities abroad

Regions / Number of Employees	Number of responding firms	Facilities in ERM countries	Facilities in EU/non-ERM countries	Facilities in USA	Facilities elsewhere
		% of responding firms			
1 to 49	0	0.00	0.00	0.00	0.00
50 to 199	22	0.00	0.00	0.00	0.00
200 to 999	141	24.82	3.55	3.55	9.22
1,000 and above	238	23.11	11.76	10.92	14.71
Total	401	22.44	8.23	7.73	11.97

Table II.3.2a. Characteristics of responding firms in France (by own sales offices abroad)

Regions / Sectors	Number of responding firms	Own sales offices in ERM countries	Own sales offices in EU/non-ERM countries	Own sales offices in USA	Own sales offices elsewhere
		% of responding firms			
Basic materials industry	39	30.77	25.64	15.38	17.95
Iron, steel and non-ferrous metals industry	16	56.25	43.75	18.75	18.75
Mechanical engineering, electrical and automobile industries	123	40.65	30.89	22.76	30.08
Processing industry	87	54.02	25.29	11.49	13.79
Mining	0	0	0	0	0
Food, beverages and tobacco industry	46	41.30	26.09	19.57	15.22
Total industry	311	44.05	28.62	18.01	21.22
Building and construction	13	30.77	0.00	0.00	15.38
Services	77	33.77	18.18	11.69	25.97
Total	401	41.65	25.69	16.21	21.95

Table II.3.2b. Characteristics of responding firms in France (by own sales offices abroad[4]

Regions / Number of employees	Number of responding firms	Own sales offices in ERM countries	Own sales offices in EU/non-ERM countries	Own sales offices in USA	Own sales offices elsewhere
		% of responding firms			
1 to 49	0	0.00	0.00	0.00	0.00
50 to 199	22	9.09	18.18	4.55	4.55
200 to 999	141	36.88	18.44	9.93	11.35
1,000 and above	238	47.48	30.67	21.01	29.83
Total	401	41.65	25.69	16.21	21.95

Table II.3.3a. Location of foreign exchange management of firms in France (by industrial sector)

Regions / Sectors	Number of responding firms	Location of foreign exchange management abroad[1]		Head office located in[2]		
		Yes	No	Europe	USA	Japan
		% of responding firms				
Basic materials industry	39	20.51	46.15	46.15	10.26	2.56
Iron, steel and non-ferrous metals industry	16	31.25	56.25	81.25	6.25	0.00
Mechanical engineering, electrical and automobile industries	123	34.15	34.96	51.22	15.45	2.44
Processing industry	87	18.39	25.29	37.93	1.15	0.00
Mining	0	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	30.43	19.57	47.83	0.00	0.00
Total industry	311	27.33	32.48	47.91	8.04	1.29
Building and construction	13	15.38	38.46	53.85	0.00	0.00
Services	77	20.78	23.38	35.06	6.49	2.60
Total	401	25.69	30.92	45.64	7.48	1.50

[1] ND = 174; [2] ND = 182.

Table II.3.3b. Location of foreign exchange management of firms in France (by size of firm)

Regions / Number of employees	Number of responding firms	Location of foreign exchange management abroad[1]		Head office located in[2]		
		Yes	No	Europe	USA	Japan
		% of responding firms				
1 to 49	0	0.00	0.00	0.00	0.00	0.00
50 to 199	22	4.55	27.27	22.73	13.64	0.00
200 to 999	141	23.40	25.53	38.30	8.51	1.42
1,000 and above	238	28.99	34.45	52.10	6.30	1.68
Total	401	25.69	30.92	45.64	7.48	1.50

[1] ND = 174; [2] ND = 182.

Table III.1a. France: business strategies against exchange rate fluctuations (comparison of weighted and unweighted responses)

	Number of responding firms	Statement that the strategy is important % of responding firms						
		Increased domestic market re-orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with a more stable exchange rate *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
All firms unweighted	401	27.43	26.93	17.71	13.97	50.12	36.66	19.20
Export weighted	401	32.79	17.29	15.92	31.29	64.09	61.96	17.31
Weighted with turnover	401	31.54	23.42	28.89	16.97	52.03	49.24	19.01

Table III.1b. France: business strategies against exchange rate fluctuations (results according to size of company)

Number of employees	Number of responding firms	Statement that the strategy is important % of responding firms						
		Increased domestic market re-orientation	Reorientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with a more stable exchange rate *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	22.73	31.82	18.18	4.55	31.82	45.45	4.55
200 to 999	141	30.50	26.95	14.89	12.77	42.55	29.08	15.60
1,000 and above	238	26.05	26.47	19.33	15.55	56.30	40.34	22.69
Total	401	27.43	26.93	17.71	13.97	50.12	36.66	19.20

Table III.1c. France: business strategies against exchange rate fluctuations (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Statement that the strategy is important % of responding firms						
		Increased domestic market re-orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with a more stable exchange rate *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
Share of exports								
0 to 24%	199	28.64	22.11	17.09	11.06	43.72	26.13	18.09
25 to 49%	100	29.00	35.00	17.00	16.00	52.00	46.00	22.00
50 to 100%	102	23.53	28.43	19.61	17.65	60.78	48.04	18.63
Total	401	27.43	26.93	17.71	13.97	50.12	36.66	19.20
Share of imports								
0 to 24%	329	26.75	27.36	17.33	13.98	48.63	34.65	19.15
25 to 49%	48	33.33	31.25	25.00	18.75	56.25	45.83	20.83
50 to 100%	24	25.00	12.50	8.33	4.17	58.33	45.83	16.67
Total	401	27.43	26.93	17.71	13.97	50.12	36.66	19.20

Table III.1d. France: business strategies against exchange rate fluctuations (results according to main industry groups)

Main industry groups	Number of responding firms	Statement that the strategy is important % of responding firms						
		Increased domestic market re-orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with a more stable exchange rate *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
Basic materials industry	39	20.51	41.03	23.08	5.13	56.41	46.15	12.82
Iron, steel and non-ferrous metals industry	16	6.25	6.25	0.00	0.00	75.00	37.50	31.25
Mechanical engineering, electrical and automobile industries	123	28.46	34.96	26.02	15.45	56.10	36.59	21.95
Processing industry	87	29.89	25.29	16.09	14.94	49.43	39.08	20.69
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	26.09	13.04	6.52	10.87	41.30	28.26	6.52
Total industry	311	26.37	28.30	18.65	12.54	53.05	37.30	18.65
Building and construction	13	38.46	23.08	7.69	23.08	38.46	7.69	23.08
Services	77	29.87	22.08	15.58	18.18	40.26	38.96	20.78
Total	401	27.43	26.93	17.71	13.97	50.12	36.66	19.20

Table III.2a. France: importance of time period of exchange rate fluctuation and importance of different currencies (comparison of weighted and unweighted responses)

	Number of respond-ing firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		Day to day	Month to month	Quarter to quarter		ERM currencies	EU non-ERM currencies	US dollar	Others
		As a % of total responses							
All firms unweighted	401	11.72	10.97	8.73	23.69	58.85	43.39	57.61	15.46
Export weighted	401	9.98	24.63	25.55	46.83	74.18	63.62	83.04	38.94
Weighted with turnover	401	9.02	15.32	20.71	28.57	61.36	44.49	74.13	23.26

Table III.2.b. France: importance of time period of exchange rate fluctuations and importance of different currencies (results according to size of company)

Number of employees	Number of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		Day to day	Month to month	Quarter to quarter		ERM currencies	EU non-ERM currencies	US dollar	Others
		As a % of total responses							
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	4.55	9.09	4.55	18.18	45.45	45.45	36.36	0.00
200 to 999	141	9.93	11.35	5.67	14.18	56.03	35.46	50.35	12.77
1,000 and above	238	13.45	10.92	10.92	29.83	61.76	47.90	63.87	18.49
Total	401	11.72	10.97	8.73	23.69	58.85	43.39	57.61	15.46

Table III.2c. France: importance of time period of exchange rate fluctuations and importance of different currencies (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		Day to day	Month to month	Quarter to quarter		ERM currencies	EU non-ERM currencies	US dollar	Others
		As a % of total responses							
Share of exports									
0 to 24%	199	11.06	9.05	6.03	14.07	51.26	37.19	45.23	10.55
25 to 49%	100	11.00	11.00	9.00	32.00	65.00	43.00	64.00	18.00
50 to 100%	102	13.73	14.71	13.73	34.31	67.65	55.88	75.49	22.55
Total	401	11.72	10.97	8.73	23.69	58.85	43.39	57.61	15.46
Share of imports									
0 to 24%	329	12.46	10.33	7.90	22.80	55.62	40.12	54.10	14.59
25 to 49%	48	4.17	16.67	10.42	29.17	70.83	58.33	70.83	18.75
50 to 100%	24	16.67	8.33	16.67	25.00	79.17	58.33	79.17	20.83
Total	401	11.72	10.97	8.73	23.69	58.85	43.39	57.61	15.46

Table III.2d. France: importance of time period of exchange rate fluctuations and importance of different currencies (results according to main industry groups)

Main industry groups	Number of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		Day to day	Month to month	Quarter to quarter		ERM currencies	EU non-ERM currencies	US dollar	Others
		As a % of total responses							
Basic materials industry	39	7.69	5.13	5.13	28.21	64.10	41.03	56.41	15.38
Iron, steel and non-ferrous metals industry			25.00	37.50	16	25.00	43.75	62.50	12.50
Mechanical engineering, electrical and automobile industries	123	9.76	8.94	5.69	34.15	56.10	46.34	64.23	22.76
Processing industry	87	13.79	12.64	8.05	17.24	68.97	45.98	58.62	8.05
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	19.57	15.22	10.87	15.22	63.04	50.00	45.65	4.35
Total industry	311	12.86	11.25	8.68	25.72	62.70	45.98	58.84	14.47
Building and construction	13	0.00	0.00	0.00	0.00	23.08	7.69	30.77	7.69
Services	77	9.09	11.69	10.39	19.48	49.35	38.96	57.14	20.78
Total	401	11.72	10.97	8.73	23.69	58.85	43.39	57.61	15.46

Table IV.1a. France: volume of financial hedging of foreign exchange denominated assets/liabilities (comparison of weighted and unweighted responses)

	Number of respond-ing firms	Foreign currency assets/liabilities were hedged *vis-à-vis*								
		ERM currencies [1]			EU non-ERM currencies[2]			Non-EU currencies[3]		
		To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%
		As a % of total responses								
All firms unweighted	401	17.71	9.98	22.94	10.47	9.23	36.91	13.97	4.74	29.68
Export weighted	401	7.92	9.15	62.05	10.04	9.24	60.69	7.04	3.45	69.29
Weighted with turnover	401	13.66	16.36	36.38	8.24	10.33	50.10	14.24	3.20	48.79

[1] ND = 198; [2] ND = 174; [3] ND = 207.

Table IV.1b. France: volume of financial hedging of foreign exchange denominated sets/liabilities (results according to size of company)

Number of employees	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*								
		ERM currencies[1]			EU non-ERM currencies[2]			Non-EU currencies[3]		
		To 33 %	34 to 66 %	67 to 100%	To 33%	34 to 66 %	67 to 100%	To 33%	34 to 66 %	67 to 100%
		As a % of total responses								
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	9.09	4.55	0.00	4.55	4.55	9.09	9.09	0.00	0.00
200 to 999	141	14.18	10.64	12.77	9.22	7.09	27.66	10.64	5.67	14.18
1,000 and above	238	20.59	10.08	31.09	11.76	10.92	44.96	16.39	4.62	41.60
Total	401	17.71	9.98	22.94	10.47	9.23	36.91	13.97	4.74	29.68

[1] ND = 198; [2] ND = 174; [3] ND = 207.

Table IV.1c. France: volume of financial hedging of foreign exchange denominated assets/liabilities (results according to level of foreign trade relations)

Share of foreign trade	No. of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*								
		ERM currencies[1]			EU non-ERM currencies[2]			Non-EU currencies[3]		
		To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%
		As a % of total responses								
Share of exports										
0 to 24%	199	14.07	9.55	14.57	9.55	6.53	31.16	14.07	2.51	18.09
25 to 49%	100	20.00	8.00	30.00	12.00	9.00	40.00	15.00	6.00	35.00
50 to 100%	102	22.55	12.75	32.35	10.78	14.71	45.10	12.75	7.84	47.06
Total	401	17.71	9.98	22.94	10.47	9.23	36.91	13.97	4.74	29.68
Share of imports										
0 to 24%	329	17.63	8.21	23.40	10.03	9.12	34.95	14.29	3.95	27.96
25 to 49%	48	20.83	20.83	14.58	14.58	10.42	50.00	12.50	10.42	37.50
50 to 100%	24	12.50	12.50	33.33	8.33	8.33	37.50	12.50	4.17	37.50
Total	401	17.71	9.98	22.94	10.47	9.23	36.91	13.97	4.74	29.68

[1] ND = 198; [2] ND = 174; [3] ND = 207.

Table IV.1d. France: volume of financial hedging of foreign exchange denominated assets/liabilities (results according to main industry groups)

Main industry groups	No. of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*								
		ERM currencies[1]			EU non-ERM currencies[2]			Non-EU currencies[3]		
		To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%
		As a % of total responses								
Basic materials industry	39	15.38	10.26	25.64	5.13	10.26	46.15	12.82	7.69	23.08
Iron, steel and non-ferrous metals industry	16	12.50	25.00	31.25	12.50	18.75	43.75	6.25	6.25	31.25
Mechanical engineering, electrical and automobile industries	123	32.52	7.32	24.39	14.63	8.13	44.72	22.76	4.07	37.40
Processing industry	87	10.34	12.64	14.94	9.20	6.90	29.89	10.34	2.30	26.44
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	4.35	13.04	45.65	8.70	15.22	39.13	8.70	4.35	39.13
Total industry	311	18.97	10.93	25.40	10.93	9.65	39.87	15.11	4.18	32.48
Building and construction	13	7.69	0.00	15.38	15.38	0.00	23.08	7.69	0.00	15.38
Services	77	14.29	7.79	14.29	7.79	9.09	27.27	10.39	7.79	20.78
Total	401	17.71	9.98	22.94	10.47	9.23	36.91	13.97	4.74	29.68

[1] ND = 198; [2] ND = 174; [3] ND = 207.

Table IV.2a. France: kinds of financial hedging against exchange rate fluctuations (comparison of weighted and unweighted responses)

	No. of resp. firms	Exchange rate risks were hedged by:														
		Forward exchange transaction			Discounting of foreign exchange bills			Factoring			Exchange rate insurance			Others		
		To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33 %	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%
		As a % of total responses														
All firms un-weighted	401	10.7	9.2	36.9	54.9	0.5	1.3	56.3	0.0	0.3	51.1	2.7	2.7	45.3	6.2	5.0
Export weighted	401	10.0	9.2	60.7	79.3	0.2	0.4	80.0	0.0	0.0	76.5	1.8	1.7	67.7	6.5	5.8
weighted with turnover	401	8.2	10.3	50.1	67.9	0.1	0.7	68.76	0.0	0.0	64.1	2.7	1.9	58.4	6.5	3.7

[1] ND = 174.

Table IV.2b. France: kinds of financial hedging against exchange rate fluctuations [1] (results according to size of company)

No. of employees	No. of resp. firms	Exchange rate risks were hedged by:														
		Forward exchange transaction			Discounting of foreign exchange bills			Factoring			Exchange rate insurance			Others		
		To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33 %	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100 %
		As a % of total responses														
1 to 49	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50 to 199	22	4.6	4.6	9.1	13.6	4.6	0.0	18.2	0.0	0.0	13.6	4.6	0.0	18.2	0.0	0.0
200 to 999	141	9.2	7.1	27.5	42.6	0.0	1.4	43.3	0.0	0.7	41.1	1.4	1.4	32.6	6.4	4.7
1,000 and above	238	11.8	10.9	45.0	66.0	0.4	1.3	67.7	0.0	0.0	60.5	3.4	3.8	55.5	6.7	5.5
Total	401	10.5	9.2	36.9	54.9	0.5	1.3	56.4	0.0	0.3	51.1	2.7	2.7	45.4	6.2	5.0

[1] ND = 174.

Table IV.2c. France: kinds of financial hedging against exchange rate fluctuations [1] (results according to main industry groups)

Main industry groups	No. of responding firms	Exchange rate risks were hedged by:														
		Forward exchange transaction			Discounting of foreign exchange bills			Factoring			Exchange rate insurance			Others		
		To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33%	34 to 66%	67 to 100%	To 33 %	34 to 66 %	67 to 100 %
		As a % of total responses														
Basic materials industry	39	5.1	10.3	46.2	61.5	0.0	0.0	61.5	0.0	0.0	53.9	5.1	2.6	53.9	5.1	2.6
Iron, steel and non-ferrous metals industry	16	12.5	18.8	43.8	75.0	0.0	0.0	68.8	0.0	6.3	68.8	6.3	0.0	56.3	12.5	6.3
Mechanical engineering, electrical and automobile industries	123	14.6	8.1	44.7	65.9	0.0	1.6	67.5	0.0	0.0	58.5	4.1	4.9	57.7	4.1	5.7
Processing industry	87	9.2	6.9	29.9	43.7	1.2	1.2	5.0	0.0	0.0	43.7	0.0	2.3	34.5	6.9	4.6
Mining	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Food, beverages and tobacco industry	46	8.7	15.2	39.1	60.9	0.0	2.2	63.0	0.0	0.0	58.7	4.4	0.0	47.8	8.7	6.5
Total industry	311	10.9	9.7	39.9	58.8	0.3	1.3	60.1	0.0	0.3	54.3	3.2	2.9	49.2	6.1	5.1
Building and construction	13	15.4	0.0	23.1	38.5	0.0	0.0	38.5	0.0	0.0	30.8	0.0	7.7	30.8	0.0	7.7
Services	77	7.8	9.1	27.3	41.6	1.3	1.3	44.2	0.0	0.0	41.6	1.3	1.3	32.5	7.8	3.9
Total	401	10.5	9.2	36.9	54.9	0.5	1.3	56.4	0.0	0.3	51.1	2.7	2.7	45.4	6.2	5.0

[1] ND = 174.

Table IV.3a. France: reasons for different forms of financial hedging (comparison of weighted and unweighted responses)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of the instrument	Others
		Statement that the strategy is important (as a % of total responses)				
All firms unweighted	401	44.64	39.65	28.43	41.65	5.49
Export weighted	401	69.28	63.55	56.30	54.48	14.37
Weighted with turnover	401	53.54	52.02	42.66	48.05	9.52

Table IV.3b. France: reasons for different forms of financial hedging (results according to size of company)

Number of employees	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of the instrument	Others
		Statement that the strategy is important (as a % of total responses)				
1 to 49	0	0.00	0.00	0.00	0.00	0.00
50 to 199	22	4.55	13.64	13.64	13.64	0.00
200 to 999	141	32.62	28.37	22.70	34.04	2.84
1,000 and above	238	55.46	48.74	33.19	48.74	7.56
Total	401	44.64	39.65	28.43	41.65	5.49

Table IV.3c. France: reasons for different forms of financial hedging (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of the instrument	Others
		Statement that the strategy is important (as a % of total responses)				
Share of exports						
0 to 24%	199	34.17	29.15	24.12	33.17	4.02
25 to 49%	100	47.00	48.00	29.00	47.00	4.00
50 to 100%	102	62.75	51.96	36.27	52.94	9.80
Total	401	44.64	39.65	28.43	41.65	5.49
Share of imports						
0 to 24%	329	41.95	39.51	26.14	38.91	3.95
25 to 49%	48	60.42	43.75	39.58	60.42	14.58
50 to 100%	24	50.00	33.33	37.50	41.67	8.33
Total	401	44.64	39.65	28.43	41.65	5.49

Table IV.3d. France: reasons for different forms of financial hedging (results according to main industry groups)

Main industry groups	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of the instrument	Others
		Statement that the strategy is important (as a % of total responses)				
Basic materials industry	39	56.41	46.15	33.33	43.59	5.13
Iron, steel and non-ferrous metals industry	16	50.00	56.25	37.50	50.00	12.50
Mechanical engineering, electrical and automobile industries	123	50.41	46.34	30.89	47.97	3.25
Processing industry	87	40.23	36.78	26.44	34.48	4.60
Mining	0	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	50.00	28.26	26.09	50.00	8.70
Total industry	311	48.23	41.48	29.58	44.05	5.14
Building and construction	13	30.77	23.08	15.38	38.46	0.00
Services	77	32.47	35.06	25.97	32.47	7.79
Total	401	44.64	39.65	28.43	41.65	5.49

Table IV.4a. France: other measures (business-internal measures) against exchange rate risks (comparison of weighted and unweighted responses)

	No. of responding firms	Netting of foreign currency assets and liability	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another international currency	Increasing staff involved in risk management	Others
		Answering 'yes' (as a % of total responses)							
All firms unweighted	401	16.71	20.20	16.21	17.71	2.24	10.72	11.72	0.00
Export weighted	401	46.34	42.56	36.52	13.75	1.46	14.35	49.07	0.00
Weighted with turnover	401	24.41	30.76	23.40	11.95	1.33	16.01	25.82	0.00

Table IV.4b. France: other measures (business-internal measures) against exchange rate risks (results according to size of company)

Number of employees	Number of responding firms	Netting of foreign currency assets and liability	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another international currency	Increasing staff involved in risk management	Others
		answering 'yes' (as a % of total responses)							
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	9.09	13.64	13.64	9.09	0.00	4.55	0.00	0.00
200 to 999	141	9.22	14.89	9.93	15.60	0.71	9.22	5.67	0.00
1,000 and above	238	21.85	23.95	20.17	19.75	3.36	12.18	16.39	0.00
Total	401	16.71	20.20	16.21	17.71	2.24	10.72	11.72	0.00

Table IV.4c. France: other measures (business-internal measures) against exchange rate risks (results according to level of foreign trade relations)

Share of foreign trade	No. of respond-ing firms	Netting of foreign currency assets and liability	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another interna-tional currency	Increasing staff involved in risk manage-ment	Others
		answering 'yes' (as a % of total responses)							
Share of exports									
0 to 24%	199	9.55	15.08	9.55	12.56	0.50	8.54	6.53	0.00
25 to 49%	100	16.00	25.00	19.00	22.00	5.00	8.00	15.00	0.00
50 to 100%	102	31.37	25.49	26.47	23.53	2.94	17.65	18.63	0.00
Total	401	16.71	20.20	16.21	17.71	2.24	10.72	11.72	0.00
Share of imports									
0 to 24%	329	14.59	19.45	13.98	17.93	2.13	9.42	10.64	0.00
25 to 49%	48	27.08	25.00	29.17	14.58	4.17	22.92	16.67	0.00
50 to 100%	24	25.00	20.83	20.83	20.83	0.00	4.17	16.67	0.00
Total	401	16.71	20.20	16.21	17.71	2.24	10.72	11.72	0.00

Table IV.4d. France: other measures (business-internal measures) against exchange rate risks (results according to main industry groups)

Main industry groups	Number of respond-ing firms	Netting of foreign currency assets and liability	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another intern. currency	Increasing staff involved in risk management	Others
		answering 'yes'(as a % of total responses)							
Basic materials industry	39	25.64	25.64	25.64	17.95	5.13	12.82	12.82	0.00
Iron, steel and non-ferrous metals industry	16	18.75	25.00	12.50	31.25	0.00	37.50	18.75	0.00
Mechanical engineering, electrical and automobile industries	123	19.51	27.64	21.14	24.39	3.25	13.82	12.20	0.00
Processing industry	87	22.99	11.49	9.20	14.94	3.45	8.05	6.90	0.00
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	10.87	19.57	21.74	13.04	0.00	4.35	15.22	0.00
Total industry	311	19.94	21.54	18.01	19.61	2.89	11.90	11.58	0.00
Building and construction	13	0.00	7.69	0.00	15.38	0.00	7.69	0.00	0.00
Services	77	6.49	16.88	11.69	10.39	0.00	6.49	14.29	0.00
Total	401	16.71	20.20	16.21	17.71	2.24	10.72	11.72	0.00

Table V.1a. France: banks' commissions and other processing fees for the exchange of currencies (comparison of weighted and unweighted responses)

	Number of responding firms	Banks' commissions and other processing fees amount to ..[1]					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...[2]		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	> 4%	Answering 'yes'	...not changed	...in-creased	...de-creased
		As a % of total responses								
All firms unweighted	401	56.61	18.95	4.49	1.50	0.25	24.94	33.67	12.72	23.44
Export weighted	401	75.42	10.27	3.42	0.64	0.00	22.54	18.32	6.61	55.09
Weighted with turnover	401	67.98	16.04	3.77	1.02	0.02	19.37	0.30	5.82	39.40

[1] ND = 73; [2] ND = 121.

Table V.1b. France: banks' commissions and other processing fees for the exchange of currencies (results according to size of company)

Number of employees	Number of responding firms	Banks' commissions and other processing fees amount to...[1]					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...[2]		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4 %	> 4%	Answering 'yes'	...not changed	...in-creased	...de-creased
		As a % of total responses								
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	40.91	31.82	9.09	0.00	0.00	31.82	40.91	13.64	4.55
200 to 999	141	51.77	22.70	4.26	0.00	0.71	24.11	35.46	14.18	17.02
1,000 and above	238	60.92	15.55	4.20	2.52	0.00	24.79	31.93	11.76	28.99
Total	401	56.61	18.95	4.49	1.50	0.25	24.94	33.67	12.72	23.44

[1] ND = 73; [2] ND = 121.

Table V.1c. France: banks' commissions and other processing fees for the exchange of currencies (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Banks' commissions and other processing fees amount to...[1]					These costs are less expensive for intra-EU trans-actions	Since the late 1980s these costs have...[2]		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	> 4%	Answering 'yes'	...not changed	...in-creased	...de-creased
		As a % of total responses								
Share of exports										
0 to 24%	199	50.75	20.60	5.53	1.01	0.50	18.59	32.66	11.06	22.61
25 to 49%	100	57.00	20.00	4.00	2.00	0.00	31.00	31.00	14.00	26.00
50 to 100%	102	67.65	14.71	2.94	1.96	0.00	31.37	38.24	14.71	22.55
Total	401	56.61	18.95	4.49	1.50	0.25	24.94	33.67	12.72	23.44
Share of imports										
0 to 24%	329	55.62	19.15	4.56	1.52	0.30	24.92	33.43	13.07	22.49
25 to 49%	48	58.33	20.83	4.17	0.00	0.00	25.00	29.17	12.50	31.25
50 to 100%	24	66.67	12.50	4.17	4.17	0.00	25.00	45.83	8.33	20.83
Total	401	56.61	18.95	4.49	1.50	0.25	24.94	33.67	12.72	23.44

[1] ND = 73; [2] ND = 121.

Table V.1d. France: banks' commissions and other processing fees for the exchange of currencies (results according to main industry groups)

Main industry groups	Number of responding firms	Banks' commissions and other processing fees amount to...[1]					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...[2]		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	> 4%	Answering 'yes'	...not changed	...in-creased	...de-creased
		(As a % of total responses)								
Basic materials industry	39	69.23	15.38	2.56	2.56	0.00	30.77	48.72	10.26	28.21
Iron, steel and non-ferrous metals industry	16	75.00	6.25	0.00	6.25	0.00	31.25	50.00	25.00	12.50
Mechanical engineering, electrical and automobile industries	123	60.16	15.45	7.32	2.44	0.00	31.71	33.33	12.20	22.76
Processing industry	87	50.57	22.99	4.60	1.15	1.15	24.14	34.48	19.54	16.09
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	45.65	19.57	2.17	0.00	0.00	13.04	23.91	8.70	28.26
Total industry	311	57.23	17.68	4.82	1.93	0.32	26.69	35.05	14.15	21.86
Building and construction	13	30.77	15.38	7.69	0.00	0.00	15.38	15.38	7.69	23.08
Services	77	58.44	24.68	2.60	0.00	0.00	19.48	31.17	7.79	29.87
Total	401	56.61	18.95	4.49	1.50	0.25	24.94	33.67	12.72	23.44

[1] ND = 73; [2] ND = 121.

Table V.2a. France: costs for personnel and equipment for administering foreign currency transactions (comparison of weighted and unweighted responses)

	Number of responding firms	There is specific staff for administering foreign currency transactions	Annual costs for staff and equipment (as a % of firm's foreign trade)[1]					Since the late 1980s these costs have...[2]		
		Answering 'yes'	< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	> 4%	...not changed	...in-creased	...de-creased
		As a % of total responses								
All firms unweighted	401	22.19	16.21	2.24	0.25	0.25	0.00	9.48	5.74	3.24
Export weighted	401	72.39	56.17	13.24	0.97	1.55	0.00	22.56	33.25	10.81
Weighted with turnover	401	50.80	42.60	5.43	0.79	0.75	0.00	20.19	16.75	9.69

[1] ND = 325; [2] ND = 327.

Table V.2b. France: costs for personnel and equipment for administering foreign currency transactions (results according to size of company)

Number of employees	Number of responding firms	There is specific staff for administering foreign currency transactions	Annual costs for staff and equipment (as a % of firm's foreign trade)[1]					Since the late 1980s these costs have...[2]		
		Answering 'yes'	< 0.5 %	0.5 to 1 %	1 to 2%	2 to 4 %	> 4 %	...not changed	...in-creased	....de-creased
		As a % of total responses								
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200 to 999	141	7.80	4.96	1.42	0.00	0.71	0.00	3.55	3.55	0.00
1,000 and above	238	32.77	24.37	2.94	0.42	0.00	0.00	13.87	7.56	5.46
Total	401	22.19	16.21	2.24	0.25	0.25	0.00	9.48	5.74	3.24

[1] ND = 325; [2] ND = 327.

Table V.2c. France: costs for personnel and equipment for administering foreign currency transactions (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	There is specific staff for administering foreign currency transactions	Annual costs for staff and equipment (as a % of firm's foreign trade)[1]					Since the late 1980s these costs have...[2]		
		Answering 'yes'	< 0.5 %	0.5 to 1%	1 to 2%	2 to 4%	> 4 %	...not changed	...in-creased	...de-creased
		As a % of total responses								
Share of exports										
0 to 24%	199	10.05	8.54	0.00	0.00	0.00	0.00	4.02	1.51	2.51
25 to 49%	100	27.00	19.00	1.00	1.00	0.00	0.00	15.00	5.00	3.00
50 to 100%	102	41.18	28.43	7.84	0.00	0.98	0.00	14.71	14.71	4.90
Total	401	22.19	16.21	2.24	0.25	0.25	0.00	9.48	5.74	3.24
Share of imports										
0 to 24%	329	19.15	13.68	1.52	0.30	0.30	0.00	8.21	3.95	3.04
25 to 49%	48	35.42	25.00	6.25	0.00	0.00	0.00	16.67	14.58	2.08
50 to 100%	24	37.50	33.33	4.17	0.00	0.00	0.00	12.50	12.50	8.33
Total	401	22.19	16.21	2.24	0.25	0.25	0.00	9.48	5.74	3.24

[1] ND = 325; [2] ND = 327.

Table V.2d. France: costs for personnel and equipment for administering foreign currency transactions (results according to main industry groups)

Main industry groups	Number of responding firms	There is specific staff for administering foreign currency transactions	Annual costs for staff and equipment (as a % of firm's foreign trade)[1]					Since the late 1980s these costs have...[2]		
		Answering 'yes'	< 0.5%	0.5 to 1 %	1 to 2%	2 to 4 %	> 4 %	...not changed	...in-creased	...de-creased
		As a % of total responses								
Basic materials industry	39	20.51	15.38	2.56	0.00	2.56	0.00	10.26	5.13	5.13
Iron, steel and non-ferrous metals industry	16	37.50	31.25	0.00	0.00	0.00	0.00	6.25	25.00	0.00
Mechanical engineering, electrical and automobile industries	123	26.02	19.51	3.25	0.81	0.00	0.00	13.82	4.07	3.25
Processing industry	87	13.79	4.60	4.60	0.00	0.00	0.00	5.75	5.75	1.15
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	34.78	23.91	0.00	0.00	0.00	0.00	10.87	8.70	4.35
Total industry	311	23.79	16.08	2.89	0.32	0.32	0.00	10.29	6.43	2.89
Building and construction	13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services	77	19.48	19.48	0.00	0.00	0.00	0.00	7.79	3.90	5.19
Total	401	22.19	16.21	2.24	0.25	0.25	0.00	9.48	5.74	3.24

[1] ND = 325; [2] ND = 327.

Table V.3a. Hedging costs in France (comparison of weighted and unweighted responses)

	Number of responding firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)[1]					Since the late 1980s these costs have...[2]		
		< 0.5 %	0.5 to 1%	1 to 2%	2 to 4 %	> 4 %	...not changed	...in-creased	...de-creased
		(As a % of total responses)							
All firms unweighted	401	50.37	8.23	5.49	1.50	0.00	29.93	12.72	13.47
Export weighted	401	67.85	4.11	2.64	2.05	0.00	21.47	12.35	40.95
Weighted with turnover	401	56.79	10.73	2.31	1.99	0.00	27.86	8.74	31.11

[1] ND = 138; [2] ND = 176.

Table V.3b. Hedging costs in France (results according to size of company)

Number of employees	Number of responding firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)[1]					Since the late 1980s these costs have...[2]		
		< 0.5 %	0.5 to 1%	1 to 2%	2 to 4 %	> 4 %	...not changed	...in-creased	...de-creased
		As a % of total responses							
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	36.36	4.55	4.55	4.55	0.00	13.64	9.09	4.55
200 to 999	141	41.84	8.51	4.26	0.00	0.00	28.37	9.22	8.51
1,000 and above	238	56.72	8.40	6.30	2.52	0.00	32.35	15.13	17.23
Total	401	50.37	8.23	5.49	1.50	0.00	29.93	12.72	13.47

[1] ND = 138; [2] ND = 176.

Table V.3c. Hedging costs in France (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)[1]					Since the late 1980s these costs have...[2]		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	> 4%	...not changed	...in-creased	...de-creased
		As a % of total responses							
Share of exports									
0 to 24%	199	48.24	7.04	4.52	0.50	0.00	28.14	9.55	13.07
25 to 49%	100	45.00	7.00	7.00	4.00	0.00	32.00	12.00	12.00
50 to 100%	102	59.80	11.76	5.88	0.98	0.00	31.37	19.61	15.69
Total	401	50.37	8.23	5.49	1.50	0.00	29.93	12.72	13.47
Share of imports									
0 to 24%	329	50.76	7.60	4.56	1.52	0.00	30.09	12.46	11.85
25 to 49%	48	50.00	10.42	14.58	0.00	0.00	31.25	14.58	22.92
50 to 100%	24	45.83	12.50	0.00	4.17	0.00	25.00	12.50	16.67
Total	401	50.37	8.23	5.49	1.50	0.00	29.93	12.72	13.47

[1] ND = 138; [2] ND = 176.

Table V.3d. Hedging costs in France (results according to main industry groups)

Main industry groups	Number of responding firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)[1]					Since the late 1980s these costs have...[2]		
		< 0.5 %	0.5 to 1%	1 to 2%	2 to 4 %	> 4 %	...not changed	...in-creased	...de-creased
		As a % of total responses							
Basic materials industry	39	46.15	10.26	2.56	0.00	0.00	25.64	17.95	12.82
Iron, steel and non-ferrous metals industry	16	62.50	12.50	0.00	0.00	0.00	50.00	12.50	12.50
Mechanical engineering, electrical and automobile industries	123	54.47	7.32	9.76	3.25	0.00	32.52	13.01	16.26
Processing industry	87	47.13	9.20	4.60	1.15	0.00	24.14	12.64	13.79
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	52.17	6.52	2.17	0.00	0.00	28.26	13.04	13.04
Total industry	311	51.45	8.36	5.79	1.61	0.00	29.58	13.50	14.47
Building and construction	13	23.08	7.69	0.00	0.00	0.00	23.08	7.69	0.00
Services	77	50.65	7.79	5.19	1.30	0.00	32.47	10.39	11.69
Total	401	50.37	8.23	5.49	1.50	0.00	29.93	12.72	13.47

[1] ND = 138; [2] ND = 176.

Table V.4a. France: costs induced by prolonged time period for money transfers (comparison of weighted and unweighted responses)

	Number of responding firms	Average additional time period in days for bank transfers between an EU currency and the local currency compared to transfers in local currency[1]	Average additional time period in days for bank transfers between a non-EU currency and the local currency compared to transfers in local currency[2]	Since the late 1980s these costs have...					
				...for EU currencies[3]			...for non-EU currencies[4]		
				...not changed	...in-creased	...de-creased	...not changed	...in-creased	..de-creased
				As a % of total responses					
All firms unweighted	401	1.94	1.98	46.13	1.00	25.44	40.90	0.75	22.19
Export weighted	401	1.08	1.17	31.71	0.23	56.53	48.27	0.22	38.34
Weighted with turnover	401	1.35	1.32	36.08	0.59	43.08	39.35	0.58	36.03

[1] ND = 85; [2] ND = 118; [3] ND = 110; [4] ND = 145.

Table V.4b. France: costs induced by prolonged time period for money transfers (results according to size of company)

Number of employees	Number of responding firms	Average additional time period in days for bank transfers between an EU currency and the local currency compared to transfers in local currency[1]	Average additional time period in days for bank transfers between a non-EU currency and the local currency compared to transfers in local currency[2]	Since the late 1980s these costs have...					
				...for EU currencies[3]			...for non-EU currencies[4]		
				...not changed	...in-creased	...de-creased	...not changed	...in-creased	...de-creased
				As a % of total responses					
1 to 49	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50 to 199	22	2.82	1.86	50.00	0.00	13.64	31.82	0.00	13.64
200 to 999	141	2.45	2.63	43.26	1.42	19.86	35.46	0.71	16.31
1,000 and above	238	1.59	1.71	47.48	0.84	29.83	44.96	0.84	26.47
Total	401	1.94	1.98	46.13	1.00	25.44	40.90	0.75	22.19

[1] ND = 85; [2] ND = 118; [3] ND = 110; [4] ND = 145.

Table V.4c. France: costs induced by prolonged time period for money transfers (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Average additional time period in days for bank transfers between a EU currency and the local currency compared to transfers in local currency[1]	Average additional time period in days for bank transfers between a non-EU currency and the local currency compared to transfers in local currency[2]	Since the late 1980s these costs have...					
				...for EU currencies [3]			...for non-EU currencies (4)		
				...not changed	...in-creased	..de-creased	...not changed	...in-creased	...de-creased
				as a % of total responses					
Share of exports									
0 to 24%	199	2.17	2.08	44.72	1.01	22.11	35.18	1.01	19.10
25 to 49%	100	1.71	1.81	47.00	1.00	24.00	44.00	0.00	20.00
50 to 100%	102	1.75	1.99	48.04	0.98	33.33	49.02	0.98	30.39
Total	401	1.94	1.98	46.13	1.00	25.44	40.90	0.75	22.19
Share of imports									
0 to 24%	329	2.07	2.05	45.90	1.22	23.10	39.82	0.91	20.06
25 to 49%	48	1.42	1.80	50.00	0.00	35.42	45.83	0.00	31.25
50 to 100%	24	1.48	1.62	41.67	0.00	37.50	45.83	0.00	33.33
Total	401	1.94	1.98	46.13	1.00	25.44	40.90	0.75	22.19

Table V.4d. France: costs induced by prolonged time period for money transfers (results according to main industry groups)

Main industry groups	Number of responding firms	Average additional time period in days for bank transfers between a EU currency and the local currency compared to transfers in local currency[1]	Average additional time period in days for bank transfers between a non-EU currency and the local currency compared to transfers in local currency[2]	Since the late 1980s these costs have...					
				...for EU currencies[3]			...for non-EU currencies[4]		
				...not changed	...in-creased	...de-creased	...not changed	...in-creased	...de-creased
				As a % of total responses					
Basic materials industry	39	1.18	1.10	53.85	2.56	28.21	48.72	2.56	25.64
Iron, steel and non-ferrous metals industry	16	2.13	2.07	50.00	0.00	37.50	50.00	0.00	43.75
Mechanical engineering, electrical and automobile industries	123	1.68	2.04	50.41	1.63	21.95	51.22	0.81	21.95
Processing industry	87	2.78	2.79	48.28	1.15	21.84	34.48	1.15	14.94
Mining	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverages and tobacco industry	46	1.61	1.76	41.30	0.00	26.09	39.13	0.00	23.91
Total industry	311	1.94	2.09	48.87	1.29	24.12	44.37	0.96	21.86
Building and construction	13	2.00	1.00	23.08	0.00	15.38	15.38	0.00	7.69
Services	77	1.98	1.79	38.96	0.00	32.47	31.17	0.00	25.97
Total	401	1.94	1.98	46.13	1.00	25.44	40.90	0.75	22.19

[1] ND = 85; [2] ND = 118; [3] ND = 110; [4] ND = 145.

III. Country report III: Italy

III.1. Summary

The sample is made up of small and, especially, medium-sized and large manufacturing firms. The number of responding firms is around 9–10% of the mailed forms. They all have significant trade links.

Total exports are about one-third of exports measured by official statistics, the turnover is about one-fifth and employment about one-tenth. The export share of the responding firms tends to be higher than that coming from official statistics.

The composition of exports and imports by country is in line with the one computed on the basis of official statistics. Also the composition of exports, output and employment by sector is consistent, even if it reflects the fact that micro firms are under-represented.

Only in a few cases are imports and exports completely invoiced in lira. The majority of firms accept the exchange rate risk. DM and dollar are the foreign currencies most used to invoice them, in line with the figures of the Bank of Italy.

Only about 20% of the responding firms have production facilities abroad and around 25% have sales offices abroad, especially in the ERM countries.

About 50% of the responding firms are the Italian branch of a multinational – based especially in Europe – and around 70% of these handle foreign exchange management.

The answers to the questionnaire show that Italian firms primarily use financial hedging and in-house measures in order to minimize the exchange rate risk. Short-term – in particular monthly – fluctuations are relevant, especially those concerning ERM currencies and the dollar.

The most used method of financial hedging is the forward exchange transaction followed by the discounting of foreign currency bills. The reasons for choosing the instruments are above all the costs, the payment period of foreign currency bills and flexibility. The technical handling of the instrument becomes important for the smallest firms.

The most used in-house measure is the netting of foreign currency assets and liabilities. The largest firms also increase the staff involved in risk management. The smallest firms tend to increase the invoicing in local currency even if the percentage of smallest firms using this measure is around 50%: the same percentage of smallest firms nets foreign currency assets and liabilities.

The costs of the multi-currency management are limited and influenced by the firm size. Costs linked to the exchange of foreign currency in local currency are low: for around 70% of the responding firms they are lower than 0.5% of the amount exchanged. Of course, these costs depend on the contractual position of the firms, and hence for the smallest firms they are slightly higher. For around 65% of the responding firms these costs are not lower for EU transactions. For the major part of the firms they are the same as or lower than in the late 1980s.

Around 40–45% of the responding firms have specific staff for the risk management and its unit costs are limited to below 0.5% of the foreign trade volume. Since the late 1980s the costs for personnel and equipment decreased for 20% of the responding firms.

Furthermore, the costs of financial hedging are very limited for nearly 80% of the responding firms. In this case they are also affected by the firm size, since they tend to be slightly higher when the size of the firm decreases. For around 45% of the responding firms they are the same as in the late 1980s, while for around 35% they decreased. These costs decreased especially for the largest firms.

Generally speaking, a bank transfer from EU currencies into lira takes two days longer than transfers in lira and three days in the case of non-EU currencies. This period is influenced by firm size. Since the late 1980s the delay has been the same for around 50% of the responding firms and has decreased for around 30–40%. In this case the percentage of firms responding that these periods decreased is higher for the smallest firms.

The interviews confirmed these conclusions. They allowed the conclusion that the recent years changed the approach of the firms to the exchange rate risk as a consequence of the increased volatility of the currencies and of the sharp depreciation of the lira. Since the EMS crisis all currencies are considered as being equal in terms of risk. The attention paid to this issue has increased since the firms' main target is to shelter the industrial business, not to speculate. The sharp depreciation of the lira, or rather its one-way movement, decreased the need to hedge in some cases; but now that there are more uncertainties on its future development, firms have begun to increase the hedging transactions.

In general, the implementation of the single market and the liberalization of capital movements provided more opportunities in terms of financial products and use of the financial services of the foreign banks. It is worth noting that in Italy 44% of the spot and forward exchange market is covered by the Italian branches of foreign banks. This weight was just 14% in 1989.

Costs coming from the multi-currency management have been influenced partly by the increased competition in the financial markets and partly by in-house measures. Indeed almost all firms implemented or improved the information system, which limited recourse to the bank system or allowed a more stringent control on bank pricing behaviour. Costs of exchange foreign currency and costs for financial hedging decreased for six firms out of 100, while costs for personnel and equipment decreased only for four firms out of ten.

III.2. The questionnaires

III.2.1. Characteristics of the firms

We have received answers only from the industrial sector. We therefore have no information on the services sector except for three engineering services companies.

Moreover, we have not received information from many micro and small firms working in the textile clothing sector, in the tiles sector and in the furniture sector. These firms, indeed, have significant foreign trade flows. The employers' associations we have contacted in order to press them for a reply pointed out that many of these firms are likely not to have the adequate structure or staff to answer.

As shown in Table I.1.1, the firms are concentrated in the following sectors: basic materials, mechanical engineering, electrical and automobile industries, and the processing industry. Indeed, the firms of these sectors account for around 85% of total responding firms. Almost all the responding firms (around 97%) export. The total exports value of the responding firms amounts to about one-third of exports, according to the official statistics. Also, exports of the responding firms are concentrated in the above-mentioned sectors; this composition is not different from the one computed on the basis of the official statistics. The lower weight of the exports of the processing industry is likely to be explained by the above-mentioned reasons and hence by the fact that micro and small firms are under-represented.

In terms of output and employment (Tables I.1.2 and I.1.3) we note the same characteristics in terms of sectoral composition. The value of the output of total industry is about 20% of the output coming from the official statistics. Employment is about 10%.

The export share of the different sectors is higher than that coming from official statistics (for total industry 45–46% versus 30.2%). The three above-mentioned sectors have, as in the official statistics, the greatest ratio (Table I.1.4).

The distribution of firms by number of employees (Table I.2.1) clearly shows that in all sectors micro firms are under-represented. Generally speaking, medium-sized and large firms tend to prevail.

The distribution of firms by export share (Table I.2.2a) shows that in almost all sectors the number of firms with a great export share (50–100%) is at least 40%.

The distribution of firms by import share (Table I.2.2b) shows that in almost all sectors the majority of firms have a low import share (0–25%).

III.2.2. Foreign trade links

As shown in Table II.1.1, the trade links of the responding firms are significant, especially those with the EU: more than 90% of the firms export to the EU countries and 80% import from the EU countries. Also the percentage of firms trading with the major partners (for instance, Germany and France) is high.

The composition of exports and imports by country is consistent with that coming from official statistics (Table II.1.2): the percentage of exports to EU countries and imports from EU countries are, respectively, 55.5% and 54.1% versus 53.8% and 56.6%. The same is also true for trade with the individual countries.

In the majority of firms (the percentage is close to 90%) exports are not invoiced completely in the local currency. In invoicing exports the most frequently used foreign currencies are DM and dollar, which confirms the figures of the Bank of Italy.

Also, on the imports side, the majority of firms (more than 90%) does not invoice completely in lira and the most frequently used foreign currencies are DM and dollar. The percentage of firms invoicing in other currencies tends to be slightly higher than in the exports case. We can therefore conclude that the Italian firms accept the exchange rate risk.

Almost one-sixth of the responding firms have production facilities abroad. The major part is concentrated in the mechanical engineering, electrical and automobile sector. In this sector the production facilities are all in the area we are considering, especially in the ERM countries, and in countries different from the USA and Europe.

Around one-quarter of the responding firms have sales offices abroad, and in this case too, they are concentrated in the above-mentioned sectors. Sales offices are very widespread in the ERM countries, but also the percentage of offices in the other countries is high.

Around 50% of the responding firms are Italian branches of multinational companies, but the foreign exchange management is not handled by the head offices abroad in most cases. Head offices are located mostly in Europe, but the percentage of head offices located in the USA is not negligible.

III.2.3. Exchange rate fluctuations and business strategies

Tables III.1a to III.1d show clearly that the method most used to avoid exchange rate fluctuations is financial hedging. The second most frequent is in-house measures. There are no significant differences by sector, firm size, export and import ratios, weighting by exports and turnover. We can add that when the size of the firm increases, the use of the above-mentioned strategies also increases. The percentage of firms that uses financial strategies is around 74% in the case of micro firms and increases to around 97% for the large ones. The percentage of firms responding that uses in-house measures is around 26% in the case of micro firms and increases to around 60% for the large ones. The percentages for real hedging are low, almost negligible.

As far as the fluctuations of exchange rates are concerned, the tendency is less clear. Looking at the sectoral breakdown we could conclude that in the sectors whose weight is higher, perhaps the daily and monthly fluctuations are the most relevant ones. However, the weight of long-run fluctuations is not negligible. In the largest firms the daily and the long-run fluctuations are more important than in the smaller ones (Table III.2b). Table III.2c shows that for the firms characterized by the highest export ratio, the daily fluctuations are less important than for the other firms, while the monthly fluctuations are more important. For firms characterized by the largest imports ratio the monthly and long-run fluctuations are more important.

In contrast from Tables III.2a to III.2d it is clear that the relevant exchange rates are those of the ERM currencies and of the dollar. For the largest firms the exchange rates of the non-ERM EU currencies are more important than for the other firms.

III.2.4. Protection against exchange rate risks

Tables IV.1a to IV.1d show that the responding firms tend to hedge especially the liabilities in foreign exchange currency against the fluctuations in ERM currencies, even if the percentage which hedge against the fluctuations of non-EU currencies is not negligible. We note also a polarization of the firms around low and high percentage which hedge.

In almost all sectors the percentage that hedges is greater than 66% for most firms. The firm size exerts an influence on the percentage: micro and small firms tend to hedge only a small percentage while medium-sized and large firms tend to hedge a percentage greater than 66%.

The size of export share does not exert an influence on this behaviour. Some differences emerge when the import share is taken into account: in this case we note that the percentage of firms that hedge a low percentage of the liabilities in foreign currency against the fluctuations of the ERM currencies and a high percentage against the fluctuations of non-EU currencies is greater for the firms with a large (50–100%) import share.

The most used kind of financial hedging is represented by forward exchange transactions followed by discounting of foreign currency bills. Also the percentage referring to the other measures is high: it often deals with currency options (Tables IV.2a to IV.2d).

In the case of forward transactions and discounting of foreign currency bills, the percentage of the responding firms that use a percentage more than 66% is greater than the other ones. In contrast, in the case of 'other measures' a percentage lower than 33% is mostly used by firms. Taking into account the firm size, the tendency to use especially forward transaction is confirmed; however, there does not seem to be a clear relationship between the size of the firm and the size of the percentage hedged by forward transaction (Table IV.2b). Firms that are characterized by a low or medium export share tend to use the greatest percentage of forward transaction, while in the case of import share size, the firms are characterized by a high import ratio that tend to use the greatest percentage of forward transactions.

The main reasons that lead to choose the method of financial hedging are the costs, the payment period of accounts in foreign currencies and the flexibility of the instrument. Taking into account the firm size, we note that for the smallest firms technical handling is more important than the flexibility of the instruments.

For firms characterized by the largest export ratio and by the lowest import ratio the costs and the flexibility of the instrument become more important than for the other firms.

With regard to internal measures carried out in order to avoid the exchange rate fluctuations, Tables IV.4a to IV.4d clearly show that the netting of foreign currency assets and liabilities is the most used measure.

Larger firms tend to use this method more than the smaller ones. Moreover, they tend to increase personnel involved in risk management, unlike the smallest firms. For the smallest firms the most important instruments are the netting of foreign currency assets and liabilities, and the increase of invoicing in lira. However, in the case of micro firms, the percentage of respondents who increase the invoicing in lira is around 50%, equal to the percentage referring to the netting of foreign currency assets and liabilities.

Taking into account the size of the export ratio, we note that when this ratio increases, the use of netting of foreign currency assets and liabilities, changing terms of payment, the invoicing in an international currency and the increase of staff levels all tend to be increasingly used. These developments also occur in firms with the largest import share, except for the increasing of staff levels.

III.2.5. Transaction costs and costs of hedging

The costs of exchanging foreign currency in local currency are very limited for 70–80% of the responding firms. However, they depend on the firm size through the bargaining strength of the firms themselves. They tend to increase when the firm size decreases (Table V.1b). Only

for about 30–40% of the responding firms are they lower for intra-EU transactions. Since the end of the 1980s they have not changed for 30–40% of the responding firms and have decreased for around 30–40%. Furthermore, the firm size exerts an influence, since for the smallest firms the percentage of firms that reported an increase in these costs is higher, at close to 30%.

The size of the export and import shares does not seem to affect these costs and their developments significantly.

Around 40% of the responding firms have specific staff for administering foreign currency transactions: for the largest firms this percentage are around 70%, while for the smallest it is around 25%. The annual costs for staff and equipment is very limited: they are lower than 0.5% of the foreign trade for around 75% of the firms. For around 35% of the firms these costs have not changed since the end of the 1980s, whereas they increased for around 35%. The relationship between firm size and changes in costs is not clear in this case: we can only note that the percentage of firms reporting a decrease increases when the firm size increases. Also the relationship between export and import ratio, on the one hand, and changes in costs, on the other, is not clear. Table V.2c tends to confirm that the percentage of firms reporting that these costs decreased is lower than the other ones, at around 20%.

The answers concerning the costs of financial hedging are rather similar to the ones concerning the exchanging of foreign currency in local currency. For almost 80% of the responding firms they are limited, even if they tend to increase when the size of the firm decreases. In this case the relationship to the size of export and import share is clearer, since the percentage responding that they are lower than 0.5% increases when these shares increase. For almost 50% of the responding firms they are the same as in the late 1980s, while for about one-third they decreased. For the largest firms the percentage responding that they decreased is close to 60%, while for the smallest ones the percentage responding that they are the same is around 40%.

A bank transfer from a EU currency into lira takes about two days longer than transfers in lira, whereas from another currency into lira it takes about three days. This period is lower for large firms and higher for the smallest ones, reflecting the influence of the different contractual positions towards the banks. Both for EU currencies and non-EU currencies the percentage of firms answering that this period increased is very low. For the smallest firms the percentage answering that it decreased is higher than for the largest ones. When the export share increases the percentage answering that this period decreased tends to increase. The opposite is true when the import share increases.

III.3. The interviews

III.3.1. Main results

The firms interviewed are medium-sized and large and work in the manufacturing sector. They all have significant trade links with the EU but also with other countries. Three firms (Company D, Company H, Company J) are only exporters. The others are both exporters and importers. One firm (Company F) is the Italian branch of a Swedish multinational, but the foreign exchange management is not handled by the head office.

Three firms (Company D, Company E and Company F) do not invoice exports in lira. For the other firms the percentage of exports invoiced in lira is at most 40%. Excluding Company E, which does not invoice imports in lira, the firms invoice at most 50% of imports in lira.

Only one firm (Company B) has no production facilities and sales offices abroad.

All firms have the target to limit exchange rate risks as much as possible. They use only financial strategies since these are easy and timely. Before the EMS crisis the ERM exchange rates were stable: the need to hedge concerned almost only the other currencies, in particular the dollar. After the EMS crisis and the sharp devaluation of the lira, the situation changed. Since then, the hedging strategies concern all currencies or in other words all currencies are considered equal in terms of risk.

The most used hedging methods are forward exchange transactions. But where the structure inside the firm is most developed, other methods are also beginning to be used.

In general, business transactions are not influenced by the selection of hedging methods. However, it is worth noting that Company F is pursuing a greater cooperation between the financial and the commercial sides of the firm.

For all the firms, costs different from those indicated in the questionnaire do not exist or are negligible. Only Company G has to perform real business transactions in order to neutralize the exchange rate risk in those countries where there are some barriers to capital movements. Sometimes, but not for the same reasons, Company J also performs real business transactions aimed at neutralizing exchange rate risks.

According to almost all the firms, the costs largely depend on the contractual position of the firm towards the banks. Moreover, due also to the increased efficiency and competition in the financial markets, some costs have disappeared (for instance those linked to the need to provide a documentation or to the contract note) and now, unlike at the end of the 1980s, all banks pay interest on foreign currency accounts. Finally, the increasing need for information led to the development or improvement of structures inside the firms, to the use of networks like Reuters, and to the development of information systems. This led to a control of pricing behaviour of the banks. At the least, costs of pure exchange rate management tended to decrease. However, in some cases costs of financial hedging tended to increase due to the need to increase the hedging strategies. It is worth noting that these costs also depend on the volatility of the market. Indeed, now that the future development of the lira exchange rate is surrounded by more uncertainties than in the recent past – since it can depreciate again or appreciate – firms are beginning to increase hedging strategies and hence costs are increasing. In some cases it was noticed that some instruments, like forward transactions, do not imply costs but advantages due to the interest rates differential. Costs are different for major and minor currencies or, in other words, for much and not much negotiated currencies rather than for EU and non-EU or ERM and non-ERM EU currencies.

III.3.2. The interviews in detail

Company A

Company A is a large automobile group. With regard to the questionnaire, it was stressed that due to the size of the group and to the fact that it is multinational the structure of imports and

exports (point II.1) is not significant and in any case difficult to determine. Figures on turnover by country were provided.

With regard to the strategies, it has been noted that since the end of the 1980s the environment in which the firm works has markedly changed.

The EMS crisis and its effects on exchange rate volatility, the difficulties of central banks in keeping exchange rates under control, the increasing diffusion of derivatives, and the increasing economic weight of the emerging areas are the main factors that characterized the situation in the first half of this decade. Moreover, the lira exchange rate depreciated markedly.

Against this background, strategies changed especially in terms of the increased attention paid to the exchange rate risks and likewise to the increased interest in hedging.

However, the strategies for providing financial hedging have not become more important than real hedging strategies. It has been stressed that financial hedging is used to react to the exchange rate fluctuations in the short term (at most one year). Generally speaking, the firm makes an annual plan and the strategy is revised monthly. If the volatility is high also the daily developments in the exchange rates are taken into account in order to adjust the strategy.

The real strategies are used in order to react to long-term movements of the exchange rates and tend to influence the sourcing policies and the localization of plants. It should also be noted that the implementation of real strategies needs a long period of time (especially when new capacity has to be created or the distributive network has to be created) and so it might be completed when it is no longer necessary, if the tensions that generated this decision reversed. Moreover, the geographical re-allocation towards the domestic market, or the re-orientation of exports and imports, is not pursued as a strategy against the exchange rate fluctuations. This group aims to increase its weight on external markets in terms of production apart from the fluctuations of the exchange rates, since it is pursuing a strategy of internationalization.

The selection of different financial strategies has been influenced by the increased number of financial products. However, business transactions have not been influenced by the different financial strategies. When a transaction is brought to an end, the most adequate financial hedging is selected, if necessary. If the volatility is high, the firm tries to assess if this tendency is temporary or persistent and reacts, if necessary, by changing the profit margins in the short term.

After the EMS crisis, the risks of fluctuations come particularly from the European currencies, while in the previous period there was only the risk of fluctuation of the dollar. It should also be noted that it is more difficult to react when there is the possibility of both revaluation and depreciation, like now for the lira.

The realization of the single market, especially the liberalization of capital movements, increased financial market efficiency, and increased competition and the number of financial products. The conditions for financial hedging have become more favourable.

As far as the costs are concerned, the costs other than those indicated in the questionnaire are considered negligible. In general, costs of 'pure foreign exchange rate management' have declined as a result of the liberalization of capital flows. Also, the costs of financial hedging

decreased for the same reason. However, the increased need of financial hedging coming from the increased exchange rate volatility lead these costs to increase compared to the 1980s. It should also be noted that costs are greater for minor European currencies and emerging countries' currencies than for the most important currencies.

Company B

This is a large firm working in the textile sector. It has a high export ratio and significant trade links especially with EU countries.

Prominent in this interview has been the increasing role played by information in determining the implementation and the costs of hedging strategies.

Generally, the firms with information have always carried out strategies against the exchange rate risk. The kind of firm of which Company B is an example accepted and accept only the industrial risk. As years go by, those firms that obtained increasing information tended gradually to increase hedging against exchange rate risks.

Some changes in strategies stemmed from the sharp devaluation of the lira. The expectation of further devaluation led to a decrease in hedging. Now that the lira exchange rate is more stable than in the past two to three years, these strategies are beginning to be carried out again.

In any case, hedging against the currencies whose probabilities of fluctuations are high is regular and continued. There are no differences between EU and non-EU currencies.

This is the background of the hedging strategies. It was also pointed out that, generally speaking, at the end of 1980s the use of derivatives became increasingly widespread even if their effects were not completely known. Now they are used with much more awareness of the consequences.

Financial hedging strategies are considered as being the immediate and most common reaction to exchange rate volatility, but they have not become more important than the real hedging strategies. It was pointed out that the timing of the implementation of real strategies is rather different and that to set financial hedging against real hedging strategies is not of interest for a firm.

There were no changes in performing business transactions regarding the instruments of financial hedging. Also in this case, the transactions are not influenced by the instruments. It is the instrument that is chosen case by case, if necessary. The realization of the single market is not seen as a major factor of change. As far as the costs are concerned, costs in addition to those specified in the questionnaire do not exist.

Since the end of the 1980s something has changed. At that time not all the banks paid interest on foreign currency accounts. Moreover, after the abolition of fixing, the bid price is lower.

The costs of financial hedging are rather low. They decreased mainly due to the development of networks like Reuters which allowed more transparency and an increasing consistency with market costs and prices.

There is no difference between costs of EU and non-EU currency management and financial hedging. The differences come from the size and the volume of negotiations. If an EU currency is not much negotiated the costs are greater than for a non-EU currency that is frequently negotiated.

Company C

This is a medium-sized firm producing electric tools with plants and sales offices in the major EU countries. Its trade links with the EU are significant.

The approach to the exchange rate risk has not changed since the end of the 1980s. They tend to have an almost full protection against exchange rate fluctuations. Of course, the EMS crisis increased the sensitivity to the problem but has not led to substantial changes in strategies. The firm uses, and used, financial hedging strategies. This does not mean that it considers them as more important than other strategies. From its point of view, the re-allocation of exports or imports, or the degree of domestic market orientation, are not targets or strategies of the firm to avoid exchange rate fluctuation: the target is to sell as much as possible independently of exchange rate movements. Similarly, the shifting of production facilities abroad meets business targets in a different way to protection against exchange risks. Moreover, no changes occurred in performing business transactions as regards the selection of different financial strategies.

As far as costs are concerned, it has been noticed that there are no costs in addition to those specified in the questionnaires, or if they exist, they are not relevant. Generally, the costs of pure foreign exchange management largely depend on the contractual position of the firm towards the banks. The company thinks that these costs have tended to increase due to the fact that banks have limited the level of interest rates and increased the price of services. The development of these costs was the same within and outside the area of the EU.

The costs of financial hedging are very limited, close to 0% of foreign trade. In this case, due also to the role of the single market, to the abolition of barriers to capital movement and to the development of financial instruments, costs tended to decrease.

Company D

This is a large firm working in the textile clothing sector. It has plants abroad and exports to many countries. Its trade links with EU and non-EU countries are significant. The approach to the exchange rate fluctuations is the following: the exports are invoiced in foreign currencies and the company hedges the exchange rate risks by forward sales of the foreign currencies themselves. This approach has never been changed.

It is clear, therefore, that this firm only uses financial strategies against the exchange rate risk. Other strategies, such as geographic re-orientation of exports, or increased domestic market orientation, or shifting production facilities abroad were never considered as a protection against exchange rate risks. For instance, if the firm decides to shift production facilities abroad it is to meet a business target and not to avoid the exchange rate risk.

This firm has always hedged against all foreign currencies and so its strategy is the same with regard both to the EU countries and non-EU countries. Moreover, no change occurred in

performing business transactions within the EU area as regards the selection of different financial strategies.

As far as costs are concerned, both costs of pure foreign exchange management and costs of financial hedging, have tended to decrease since the end of the 1980s. With regard to the costs of financial hedging it has been stressed that, unlike before, it is now no longer necessary to provide the relative documents. Moreover, the cost linked to the contract note disappeared. Finally, it has been noticed that, since the firm is only an exporter, the forward transactions do not imply costs but advantages in terms of interest rates differentials.

Company E

This is a medium-sized firm producing electronic tools and in particular bar code scanners. It experienced very rapid growth in recent years. It has plants in Germany and Japan and sales offices in many European countries, in the USA, in Japan and Australia. Moreover, as shown in the questionnaire, it exports more than 70% of its production. It has significant trade links with EU countries: more than 70% of exports and imports respectively go to and come from the EU countries. Both imports and exports are invoiced in foreign currencies.

The changes in the scenario prevailing over recent years were underlined as they exerted a great influence on the strategies. On the other hand, the liberalization of capital movements increased opportunities. Before the EMS crisis the exchange rates of the ERM currencies were stable and hence there was not the need to hedge against them. The differences in strategies and costs lay therefore between ERM currencies and the other ones. After the EMS crisis, all currencies are considered equal in terms of risk and hence the company aims to hedge against all of them.

In brief, the need to hedge has increased. As a consequence, personnel and equipment employed on the exchange rate risk increased in order not only to find the most adequate hedging but also to single out (identify) the risks. The company invested in order to change and improve its information system. It aims to act with increasing timeliness and are trying to link the hedge to the order rather than to the invoice.

No change occurred in performing business transactions within the EU area as regards the selection of the different financial strategies.

Only financial strategies have been pursued for avoiding risks arising from fluctuations in exchange rates. Some changes occurred in the methods used to hedge the exchange rate risk. Until some years ago the firm only used the discounting of foreign currency bills, afterwards also the forward exchange transactions. Now it is beginning to take into account more complicated (sophisticated) methods.

Other strategies were not pursued because the target is to sell everywhere where there is demand for the company's products. On the imports side, there are constraints dictated by the characteristics of the products they have to import.

With regard to costs, it was pointed out that there are no costs in addition to those mentioned in the questionnaire. The costs of pure foreign exchange management have not changed and those concerning the EU area are not lower. The costs of financial hedging increased due to the above-mentioned reasons.

Differences in both the costs exist between frequently and not frequently negotiated currencies.

Company F

This is a large group, a branch of a Swedish multinational. It produces electric appliances.

The financial department is independent from the head office in Sweden and is the largest in the multinational. Its structure is very advanced, similar to the one of a large bank and tends to benefit from the opportunities given by new financial products. Its target is to find the best financial strategy against the exchange rate risk in terms of timeliness and method in order to reduce risk as much as possible. Moreover, it helps the productive firms of the Italian group in hedging. The productive firms decide their hedging strategy once a year depending on the budget and then do not check the movements of the exchange rates. The financial department of the group acts to counterbalance or reinforce the effects of the single firm's strategies, especially when the volatility of the currencies increases.

As far as the strategies are concerned, the story is the following. The group has always hedged the most important currencies, especially DM and pound sterling. With regard to the DM, until the EMS crisis it hedged by forward transactions, even if there were no risks, since the exchange rates were stable. However, it benefited from the exchange rate differential. With regard to the pound, the need to hedge stemmed from its great fluctuations (they noted that paradoxically it is more stable now that it is out of the EMS), and they hedged taking into account a budget. It was the volatility of the pound that led to the reinforcement of the financial structure of the firm around the mid-1980s.

After the EMS crisis the firm hedged all currencies, even if it is worth noting that with regard to the DM area it hedges only the DM.

The company uses only financial strategies to avoid the exchange rate risks since they are the easiest and most immediate. The firm emphasized that it is a leader in its market and has great bargaining strength both on the sales and the purchases sides.

As a consequence of the increased volatility of the currencies, the firm is trying to pursue an increasing cooperation between the commercial and the financial side of the group in order the make business transactions more adequate to the exchange rates market. In the recent past, for instance, it included in the contracts the partial paying back (restitution) of the benefits coming from the devaluation of the lira.

The company does not make distinctions between currencies. Moreover, it is now analysing the emerging markets from the point of view of the exchange rates markets. In particular, it makes transactions and hedges in order to learn the characteristics of these emerging and increasingly used currencies.

With regard to the costs, the group noticed that there are no additional costs besides those indicated in the questionnaire. The changes in these costs depend on the movement and volatility of the market and hence it is difficult to say which was their tendency. Generally speaking, those concerning the pure exchange rate management tended to decrease. The reason is likely to be the bargaining strength of the firm. Moreover, from its point of view, the Italian

bank commissions are lower than those of foreign banks. The costs of financial protection are limited but tended to increase due to the increased volatility of the currencies.

Also in this case, the differences between currencies come from the developments of the market and not from the distinction between EU area and rest of the world.

Company G

This is a large multinational group producing rubber articles. It has plants and sales offices in many European and non-European countries. Its trade links with the EU countries are significant. However, due to the organization of the group, especially with regard to the imports, it was not possible to have figures on imports and on their geographic composition.

The liberalization of capital movements and the EMS crisis exerted great influence on the strategy of this group. Since 1992 the attention to the exchange rate risk increased and hence they increasingly aim to protect the industrial business from the fluctuations of the exchange rates. The group's target has therefore been to remove the exchange rate risk. Every commercial position is hedged as soon as it arises.

Thanks also to the liberalization of capital movements, a special unit, based in Switzerland, was created in order to make all the necessary financial hedging transactions. The European and North American units resort to this unit. Moreover, every local productive unit has its own financial structure that cooperates (interacts) with the central unit. At present the group is improving the information system that links all the units, local and central. Due to the presence of units in many countries there is the contemporary presence of assets and liabilities in the same currency. In this case, the group hedges only the part of liabilities exceeding the assets. Unlike in the past, since 1992 it considers all currencies as being equal in terms of risks and pursue the same hedging strategy.

The group uses only financial strategies in order to avoid the exchange rate risk. The most used method is forward transactions.

Business transactions were not influenced by the selection of financial hedging strategies. However, it has to be said that in the recent years a special unit was created to buy products from the productive units in the different countries and sell them, in local currency, in the countries where there are no productive units.

As far as costs are concerned, it was noticed that costs different from those mentioned in the questionnaire are not relevant. The company neutralizes the risk of fluctuations in the exchange rates performing real business transactions only in the countries where there are barriers to the movement of capital. Of course, this is an additional cost.

Generally speaking, the creation of the present structure and the implementation of the information system decreased significantly the costs of exchange rate management since they reduced the resort to banks. However, the increased need to avoid the exchange rate risk increased the costs of personnel and equipment while the other costs of financial hedging decreased due to the increased competitiveness of financial markets.

Company H

This is a medium-sized mechanical firm producing equipment for processing wood. It has a large export share and exports more than 40% of its output to the EU. It invoices exports mainly in DM (50%) and dollars (40%). Only 5% is invoiced in lira. It has sales offices in Europe (Western and Eastern), in the USA and in Asia.

It uses financial strategies against the fluctuations of the exchange rates. However, it tends to improve the non-price factor competitiveness in order to be able to face the long-run fluctuations and, in particular, the possibility that the lira tends to appreciate.

Moreover, the firm knows on the basis of its budget the amount of foreign currencies it will receive. It partly hedges this amount and if the exchange rates have unexpected movements it changes the price of its products. It checks the budget and the financial hedging strategy twice a year.

The EMS crisis increased the attention paid to the exchange rate movements and hence the need to use financial hedging. Since then the company considers all currencies as being equal in terms of risks. Business transactions have not been influenced by the selection of the financial hedging method.

Until some years ago the firm used only financing in foreign currencies. In recent years the use of forward exchange transactions has increased significantly.

The liberalization of capital movements has given them the opportunity to use foreign currency accounts more easily and allowed the reduction of costs through increased competition in the financial markets. With regard to the costs of financial hedging, they tended to decrease but it has to be said that they depend also on the volatility of the market. There are no differences between EU and non-EU currencies in terms of costs of financial hedging.

Company I

This is a medium-sized mechanical firm producing, in particular, equipment for the production of tiles and packaging. Its export share is around 90%. It has significant trade links, especially with Eastern Europe, Latin America, and Asia. It has sales offices in Europe, in the USA, in Latin America and in Asia. Moreover, it has specific staff involved in risk management.

Since the late 1980s there have been changes in their strategies stemming from the increased volatility of financial markets, the kinds of the financial hedging instruments and their costs. The financial hedging against the exchange rate risk is seen as the only and the most important strategy. The choice of the method of financial hedging has been influenced by new products like swaps, options, and futures. However, a relevant part of the financial hedging is represented by forward exchange transactions. There are no differences between the EU and non-EU area in terms of strategy changes. Likewise, since the EMS crisis, there are no differences in terms of currencies. Also in this case foreign currencies are considered equal in terms of risk and hence they all are hedged. This also means that since that time the attention paid to this problem has increased.

Business transactions have not been influenced by the selection of the financial hedging method.

With regard to the costs, costs different from those indicated in the questionnaire do not exist. However, it was pointed out that the most important problem is to assess the future value of revenues and payments in foreign currencies and when this amount will be received or paid. Miscalculations on this side lead to relevant costs especially for importers.

The increased number of financial hedging instruments and the increased competition in the bank sector allowed a significant reduction of the costs of hedging and management of foreign currencies, an increase in timeliness, and more efficient bank services. Costs concerning the EU area are probably lower than the costs concerning the other areas. Foreign banks are considered as having more expertise than the Italian ones in risk management and permit more timeliness and cheaper interventions.

Company J

This is a medium-sized firm working in the textile clothing sector. It is only an exporter and has a large export share (60%). The exports are directed especially to the EU countries and Japan. The figures provided for turnover refers to the direct turnover of the company. Taking into account all sales linked to this trade mark the turnover increases to LIT 850 billion. The information concerning the multi-currency management refers to the company based in Italy. The foreign companies have their own foreign currency management.

This firm accepts the exchange rate risk since invoices in lira comprise only 40% of exports. It uses only financial hedging strategies. The instrument used to protect against the fluctuations of the exchange rates has always been the forward exchange transactions since they are considered the simplest ones. The EMS crisis occurred in 1992 and the sharp devaluation of the lira has remarkably changed the approach to the exchange rate risk. Since that period, the firm has maximized attention to this problem, trying to minimize the risk. Since then, all currencies are considered as being equal in terms of risks and hence the hedging strategies are not different depending on the currency. Moreover, it was on the occasion of the devaluation of the lira that the company appreciated the opportunities given by the liberalization of capital movements, for instance the possibility to have foreign currency accounts.

Business transactions have, in some cases, been influenced by the devaluation of the lira rather than by the selection of the hedging method.

From the firm's point of view, there are no costs different from those indicated in the questionnaire. However, sometimes it has to perform real business transactions aimed at neutralizing the risk of fluctuations in exchange rates, but its costs are limited.

Costs of multi-currency management and hedging have not decreased since the end of the 1980s. In particular, costs of financial hedging have been influenced by the increased need to hedge. However, the firm prefers to bear these costs instead of the risk of losses due to fluctuations in the exchange rates.

Appendix IIIA: Italian tables

Table I.1.1. Exports of responding firms in Italy

Sectors	Responding firms		Exports of responding firms		Exports according to official statistics	
	Number	In %[1]	Value in local currency	In %[2]	Value in local currency (billion)	In % of total exports
			1994		1994	
Basic materials industry	28	15.14	27,632	28.45	45,229.4	15.0
Iron, steel and non-ferrous metals industry	5	2.70	212	0.22	10,289.1	3.4
Mechanical engineering, electrical and automobile industries	92	49.73	63,419	65.29	140,337	46.6
Processing industry	41	22.16	4,706	4.84	88,390.4	29.4
Mining	1	0.54	27	0.03	955.0	0.3
Food, beverages and tobacco industry	15	8.11	464	0.48	15,654.2	5.2
Total industry	182	98.38	96,460	99.31	300,855	100
Building and construction						
Services	3	1.62	673	0.69	na	na
Total	185	100.00	97,133	100.00	na	na

[1] Of all responding firms.

[2] Of total exports of all responding firms.

Table I.1.2. Value of output of responding firms in Italy

Sectors	Responding firms		Value of output of responding firms		Value of output[3] according to official statistics	
	Number	In %[1]	Value in local currency	In %[2]	Value in local currency (billion)	In % of total output
			1994		1994	
Basic materials industry	29	15.26	46,485	22.60	184,411	18.5
Iron, steel and non-ferrous metals industry	5	2.63	1,032	0.50	5,8713	5.9
Mechanical engineering, electrical and automobile industries	93	48.95	141,970	69.02	329,033	33.0
Processing industry	43	22.63	1,3138	6.39	265,880	26.7
Mining	1	0.53	152	0.07	3,7743	3.8
Food, beverages and tobacco industry	16	8.42	2,157	1.05	119,794	12.0
Total industry	187	98.42	204,934	99.63	995,544	100
Building and construction					na	na
Services	3	1.58	761	0.37	na	na
Total	190	100.00	205,695	100.00	na	na

[1] Of all responding firms.

[2] Of total output (turnover from domestic production) of all responding firms.

[3] Gross output, not value added.

Table I.1.3. Employment by responding firms in Italy

Sectors	Responding firms		Employees of responding firms		Employees according to official statistics	
	Number	In %[1]	Employees (1,000)	In %[2]	Employees (1,000)	In %
			1994		1994	
Basic materials industry	29	15.26	71,414	15.37	608	13.2
Iron, steel and non-ferrous metals industry	5	2.63	959	0.21	107	2.2
Mechanical engineering, electrical and automobile industries	94	49.47	360,103	77.48	1,573	34.2
Processing industry	42	22.11	28,128	6.05	1,913	41.2
Mining	1	0.53	51	0.01	68	1.3
Food, beverages and tobacco industry	16	8.42	3,100	0.67	361	7.9
Total industry	187	98.42	463,755	99.78	4,630	100
Building and construction						
Services	3	1.58	1009	0.22		
Total	190	100.00	464,764	100.00		

[1] Of all responding firms.

[2] Of total employees of all responding firms.

Table I.1.4. Comparison of export shares[1] of responding firms, and of the total economy and its sectors in Italy

Export shares Sectors	Export shares of responding firms in given sectors and for all responding firms, %	Sectoral export shares and the export share of the total economy according to official statistics, %
Raw materials	59.49	24.5
Iron, steel and non-ferrous metals	20.58	17.5
Mechanical engineering, electrical and automobile industries	41.86	42.7
Processing Industry	45.76	33.2
Mining	17.76	2.5
Food, beverages and tobacco	22.87	13.1
Total Industry	45.80	30.2
Building and construction		
Services	88.44	
Total	45.96	

[1] Exports as a % of total turnover from domestic production.

Table I.2.1. Characteristics of responding firms in Italy (by firm size – number of employees)

Employees / Sector	All responding firms		Micro firms: up to 10 employees		Small firms: 10 to 99 employees		Medium-sized: 100 to 499 employees		Large firms: 500 and more employees	
	No. of firms	In %	No. of firms	In %[1]	No. of firms	In %[1]	No. of firms	In %[1]	No of firms	In %[1]
Basic materials industry	29	100	.	.	7	24.14	7	24.14	15	51.72
Iron, steel and non-ferrous metals industry	5	100	.	.	1	20.00	4	80.00	.	.
Mechanical engineering, electrical and automobile industries	94	100	3	3.19	14	14.89	45	47.87	32	34.04
Processing industry	42	100	2	4.76	14	33.33	13	30.95	13	30.95
Mining	1	100	.	.	1	100.00	.	.	.	.
Food, beverages and tobacco industries	16	100	1	6.25	5	31.25	9	56.25	1	6.25
Total industry	187	100	6	3.21	42	22.46	78	41.71	61	32.62
Building and construction										
Services	3	100	.	.	2	66.67	.	.	1	33.33
Total	190	100	6	3.16	44	23.16	78	41.05	62	32.63

[1] As a % of the total number of firms in each sector.

Table I.2.2a. Characteristics of responding firms in Italy (by export share [1])

Export share / Sector	All responding firms		Up to 24%		25-49%		50-100%	
	Number of firms	In %	Number of firms	In % [2]	Number of firms	In % [2]	Number of firms	In % [2]
Basic materials industry	27	100	9	33.33	7	25.93	11	40.74
Iron, steel and non-ferrous metals industry	3	100	2	66.67	1	33.33	.	.
Mechanical engineering, electrical and automobile industries	90	100	19	21.11	26	28.89	45	50.00
Processing industry	40	100	15	37.50	8	20.00	17	42.50
Mining	1	100	1	100.00	.	.	.	.
Food, beverages and tobacco industry	15	100	8	53.33	2	13.33	5	33.33
Total industry	176	100	54	30.68	44	25.00	78	44.32
Building and construction								
Services	3	100	.	.	.	.	3	100.00
Total	179	100	54	30.17	44	24.58	81	45.25

[1] Exports as a % of total turnover from domestic production.

[2] As a % of the number of responding firms in each sector. (Adds up to 100% in each sector.)

Table I.2.2.2. Characteristics of responding firms in Italy (by import share [1])

Import share / Sector	All responding firms		Up to 24%		25-49%		50-100%	
	Number of firms	In %	Number of firms	In % [2]	Number of firms	In % [2]	Number of firms	In % [2]
Basic materials industry	26	100	14	53.85	10	38.46	2	7.69
Iron, steel and non-ferrous metals industry	5	100	1	20.00	1	20.00	3	60.00
Mechanical engineering, electrical and automobile industries	79	100	52	65.82	17	21.52	10	12.66
Processing industry	37	100	22	59.46	10	27.03	5	13.51
Mining	1	100	.	.	1	100.00	.	.
Food, beverages and tobacco industry	13	100	7	53.85	2	15.38	4	30.77
Total industry	161	100	96	59.63	41	25.47	24	14.91
Building and construction								
Services	3	100	2	66.67	1	33.33	.	.
Total	164	100	98	59.76	42	25.61	24	14.63

[1] Imports as a % of total turnover from domestic production.

[2] As a % of the number of responding firms in each sector. (Adds up to 100% in each sector.)

Table II.1.1. Italy: distribution of exports and imports 1994 (% of firms dealing with each area)[1]

	Responding firms	
	Exports	Imports
EUR-12 total	92.43	80.00
Belgium/Luxembourg	48.11	20.00
France	74.05	50.81
Germany	77.30	64.32
Ireland	15.14	5.95
Italy	45.41	23.24
Netherlands	58.92	22.16
Spain	65.95	31.35
Other West European countries	65.95	36.22
USA	52.97	27.57
Japan	30.27	17.30
Rest of world	78.38	38.92

Table II.1.2. Italy: distribution of exports and imports 1994 (direction of trade as % of total)

	Responding firms		According to official statistics	
	Exports	Imports	Exports	Imports
EUR-12 total	55.5	54.1	53.8	56.6
Other West European countries	8.8	6.9	7.9	9.4
USA	13.9	8.9	7.7	4.6
Japan	2.3	2.3	2.1	2.3
Rest of world	19.5	27.8	28.5	27.1

Table II.2a. Italy: invoicing practices – exports

	Number of responding firms	... % of responding firms invoice in:					
		Local currency		DM	US dollar	Pound	Others
		< 100%	100%				
Basic materials industry	27	85.19	14.81	70.37	59.26	40.74	62.96
Iron, steel and non-ferrous metals industry	5	100.00	0.00	80.00	20.00	0.00	100.00
Mechanical engineering, electrical and automobile industries	93	91.40	8.60	69.89	65.59	40.86	64.52
Processing industry	41	90.24	9.76	78.05	68.29	31.71	60.98
Mining	1	100.00	0.00	0.00	100.00	0.00	0.00
Food, beverages and tobacco industry	15	80.00	20.00	53.33	46.67	13.33	40.00
Total industry	182	89.56	10.44	70.33	62.64	35.16	62.09
Building and construction							
Services	3	100.00	0.00	66.67	100.00	0.00	66.67
Total	185	89.73	10.27	70.27	63.24	34.59	62.16

Table II.2b. Italy: invoicing practices – imports

	Number of responding firms	... % of responding firms invoice in:					
		Local currency		DM	US dollar	Pound	Others
		< 100%	100%				
Basic materials industry	27	96.30	3.70	81.48	66.67	37.04	74.07
Iron, steel and non-ferrous metals industry	5	80.00	20.00	80.00	60.00	20.00	80.00
Mechanical engineering, electrical and automobile industries	91	93.41	5.49	67.03	52.75	26.37	67.03
Processing industry	40	90.00	10.00	57.50	47.50	10.00	47.50
Mining	1	100.00	0.00	0.00	100.00	0.00	0.00
Food, beverages and tobacco industry	16	87.50	12.50	31.25	50.00	25.00	62.50
Total industry	180	92.22	7.22	63.89	53.89	23.89	63.33
Building and construction							
Services	3	100.00	0.00	66.67	33.33	33.33	66.67
Total	183	92.35	7.10	63.93	53.55	24.04	63.39

Table II.3a. Italy: production facilities abroad

	Number of resp. firms	ERM countries	EU non-ERM countries	USA	Others
		As a % of total responses			
Basic materials industry	2	100.00	100.00	100.00	50.00
Iron, steel and non-ferrous metals industry	0	.	.	.	.
Mechanical engineering, electrical and automobile industries	21	61.90	47.62	38.10	66.67
Processing industry	7	28.57	0.00	0.00	71.43
Mining	0	.	.	.	.
Food, beverages and tobacco industry	1	100.00	100.00	0.00	0.00
Total industry	31	58.06	41.94	32.26	64.52
Building and construction					
Services	0	.	.	.	.
Total	31	58.06	41.94	32.26	64.52

Table II.3b. Italy: sales facilities abroad

	Number of resp. firms	ERM countries	EU non-ERM countries	USA	Others
		As a % of total responses			
Basic materials industry	5	40.00	60.00	80.00	80.00
Iron, steel and non-ferrous metals industry	1	100.00	0.00	0.00	0.00
Mechanical engineering, electrical and automobile industries	29	72.41	55.17	37.93	51.72
Processing industry	12	83.33	41.67	33.33	16.67
Mining	0	.	.	.	.
Food, beverages and tobacco industry	2	100.00	0.00	50.00	50.00
Total industry	49	73.47	48.98	40.82	44.90
Building and construction					
Services	2	0.00	0.00	0.00	100.00
Total	51	70.59	47.06	39.22	47.06

Table II.3c. Italy: location of foreign exchange management and head office

	Number of responses	Location of foreign exchange management abroad		Head office located in:		
				Europe	USA	Japan
		Yes	No			
		As a % of total responses				
Basic materials industry	20	27.27	72.73	90.91	9.09	.
Iron, steel and non-ferrous metals industry						
Mechanical engineering, electrical and automobile industries	54	40.00	60.00	61.29	35.48	3.23
Processing industry	16	25.00	75.00	62.50	12.50	25.00
Mining						
Food, beverages and tobacco industry	4	50.00	50.00	50.00	50.00	.
Total industry	94	35.29	64.71	67.31	26.92	5.77
Building and construction						
Services	2	.	100.00	100.00	.	.
Total	96	34.62	65.38	67.92	26.42	5.66

Table III.1a. Business strategies against exchange rate fluctuations in Italy

	No. of respond-ing firms	Increased domestic market orient-ation	Re-orientation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Re-orientation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting product-ion facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
All firms unweighted	162	19.14	14.20	15.43	11.11	84.57	50.62	15.43
Export weighted (respond-ing firms)	162	19.51	11.69	13.49	11.15	82.95	56.74	16.84
Export weighted (official statistics)	162	18.48	14.90	16.40	10.52	85.49	51.20	14.10
Turnover weighted (responding firms)	162	19.90	12.44	14.26	11.58	82.83	55.75	16.92
Turnover weighted (official statistics)	162	16.28	14.58	13.56	8.44	87.65	48.80	11.70

Table III.1b. Business strategies against exchange rate fluctuations in Italy (by firm size)

No. of employees	Number of respond-ing firms	Incr. domestic market orient-ation	Re-orientation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Re-orientation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting product-ion facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
1-49	23	21.74	17.39	17.39	4.35	73.91	26.09	8.70
50-199	43	20.93	18.60	13.95	11.63	83.72	51.16	16.28
200-999	63	12.70	14.29	17.46	14.29	82.54	53.97	12.70
1,000 and above	32	28.13	6.25	12.50	9.38	96.88	59.38	25.00

Table III.1c. Business strategies against exchange rate fluctuations in Italy (by level of foreign trade relations

	Number of respond-ing firms	Increased domestic market orient-ation	Reorientation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Re-orientation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
Share of exports								
0-24%	47	19.15	12.77	10.64	8.51	89.36	48.94	17.02
25-49%	38	26.32	10.53	15.79	7.89	76.32	47.37	15.79
50-100%	76	14.47	17.11	18.42	13.16	85.53	52.63	14.47
Total	161	18.63	14.29	15.53	10.56	84.47	50.31	15.53
Share of imports								
0-24%	83	22.89	16.87	14.46	14.46	81.93	50.60	24.10
25-49%	42	11.90	9.52	19.05	4.76	92.86	50.00	4.76
50-100%	21	9.52	14.29	14.29	9.52	85.71	42.86	4.76
Total	146	17.81	14.38	15.75	10.96	85.62	49.32	15.75

Table III.1d. Business strategies against exchange rate fluctuations in Italy (by main industry groups)

	Number of respond-ing firms	Increased domestic market orient-ation	Re-orientation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Re-orientation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting product-ion facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
Basic materials industry	22	13.64	4.55	4.55	4.55	90.91	68.18	13.64
Iron, steel and non-ferrous metals industry	3	33.33	33.33	0.00	0.00	100.00	33.33	0.00
Mechanical engineering, electrical and automobile industries	84	22.62	14.29	16.67	14.29	79.76	53.57	19.05
Processing industry	37	16.22	18.92	27.03	10.81	89.19	43.24	10.81
Mining	1	0.00	0.00	0.00	0.00	100.00	0.00	0.00
Food, beverages and tobacco industry	12	0.00	16.67	0.00	0.00	91.67	41.67	0.00
Total industry	159	18.24	14.47	15.72	10.69	84.91	51.57	14.47
Building and construction								
Services	3	66.67	0.00	0.00	33.33	66.67	0.00	66.67
Total	162	19.14	14.20	15.43	11.11	84.57	50.62	15.43

Table III.2a. Italy: importance of time period of exchange rate fluctuations and importance of different currencies

	No. of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		..short-term exchange rate fluctuations			..long-term exchange rate changes				
		day-to-day	month-to-month	quarter-to-quarter		..ERM-currencies	..EU-non-ERM currencies	..US-dollar	..Others
		(as a % of total responses)				...are important (as a % of total responses)			
All firms, unweighted	169	31.36	36.09	20.12	24.26	89.94	32.54	67.46	14.79
Export weighted (responding firms)	169	29.93	37.09	17.54	24.74	87.62	32.28	67.10	14.93
Export weighted (official statistics)	169	32.83	33.15	21.22	24.30	91.07	33.89	66.94	14.56
Turnover weighted (responding firms)	169	30.43	37.49	18.25	24.62	88.59	32.80	67.09	15.47
Turnover weighted (official statistics)	169	32.54	34.92	20.77	26.21	90.59	33.95	66.06	13.10

Table III.2b. Italy: importance of time period of exchange rate fluctuations and importance of different currencies (by size of company)

	No. of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day-to-day	month-to-month	quarter-to-quarter		..ERM-currencies	...EU-non-ERM currencies	...US dollar	..Others
		(as a % of total responses)				...are important (as a % of total responses)			
1-49	25	16.00	32.00	20.00	8.00	88.00	28.00	64.00	16.00
50-199	44	20.45	43.18	27.27	20.45	84.09	27.27	52.27	9.09
200-999	66	39.39	34.85	16.67	19.70	93.94	25.76	69.70	16.67
1,000 and above	33	39.39	33.33	18.18	51.52	90.91	54.55	84.85	18.18

Table III.2c. Italy: importance of time period of exchange rate fluctuations and importance of different currencies (by level of foreign trade relations)

	No. of respond-ing firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations:			...long-term exchange rate changes				
		day-to-day	month -to-month	quarter-to-quarter		..ERM currencies	...EU non-ERM currencies	...US dollar	...Others
		(as a % of total responses)				...are important (as a % of total responses)			
Share of exports									
0-24%	51	39.22	29.41	17.65	21.57	90.20	31.37	52.94	9.80
25-49%	40	32.50	35.00	22.50	27.50	87.50	37.50	62.50	20.00
50-100%	77	24.68	41.56	20.78	24.68	90.91	31.17	80.52	15.58
Total	168	30.95	36.31	20.24	24.40	89.88	32.74	67.86	14.88
Share of imports									
0-24%	104	28.85	36.54	25.96	22.12	91.35	35.58	72.12	14.42
25-49%	42	35.71	30.95	9.52	28.57	88.10	28.57	57.14	11.90
50-100%	22	31.82	45.45	13.64	27.27	86.36	27.27	68.18	22.73
Total	168	30.95	36.31	20.24	24.40	89.88	32.74	67.86	14.88

Table III.2d. Italy: importance of time period of exchange rate fluctuations and importance of different currencies (by main industry groups)

	No. of respond-ing firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day-to-day	month-to-month	quarter-to-quarter		...ERM curren-cies	...EU non-ERM currencies	...US dollar	..Others
		(as a % of total responses)				...are important (as a % of total responses)			
Basic materials industry	26	26.92	30.77	11.54	26.92	80.77	26.92	69.23	7.69
Iron, steel and non-ferrous metals industry	3	66.67	0.00	33.33	33.33	100.00	33.33	33.33	0.00
Mechanical engineering, electrical and automobile industries	87	31.03	41.38	19.54	24.14	90.80	34.48	66.67	18.39
Processing industry	37	35.14	21.62	27.03	24.32	97.30	40.54	72.97	13.51
Mining	1	0.00	100.00	0.00	100.00	100.00	100.00	100.00	0.00
Food, beverages and tobacco industry	12	33.33	50.00	25.00	8.33	83.33	8.33	50.00	16.67
Total industry	166	31.93	35.54	20.48	24.10	90.36	33.13	66.87	15.06
Building and construction									
Services	3	0.00	66.67	0.00	33.33	66.67	0.00	100.00	0.00
Total	169	31.36	36.09	20.12	24.26	89.94	32.54	67.46	14.79

Table IV.1a. Italy: volume of financial hedging of foreign exchange denominated assets/liabilities

	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non EU currencies		
		to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%
		(as a % of total responses)								
All firms unweighted	127	30.71	16.54	40.94	9.45	4.72	18.90	18.90	15.75	34.65
Export weighted (responding firms)	127	31.25	14.46	45.56	10.67	5.52	20.99	14.52	17.22	36.62
Export weighted (official statistics)	127	28.83	16.42	41.46	8.96	4.84	18.49	20.50	15.93	34.16
Turnover weighted (responding firms)	127	30.56	14.78	45.73	10.38	5.88	21.05	14.63	17.76	36.57
Turnover weighted (official statistics)	127	32.34	18.37	36.94	11.41	3.63	15.54	20.99	13.73	34.55

Table IV.1b. Italy: volume of financial hedging of foreign exchange denominated assets/liabilities (by size of company)

	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non EU currencies		
		to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%
		(as a % of total responses)								
1-49	16	31.25	18.75	18.75	6.25	6.25	.	18.75	31.25	25.00
50-199	35	37.14	20.00	28.57	8.57	5.71	5.71	28.57	17.14	20.00
200-999	49	30.61	14.29	51.02	14.29	4.08	26.53	14.29	14.29	36.73
1,000 and above	26	23.08	15.38	50.00	3.85	3.85	30.77	15.38	7.69	53.85

Table IV.1c. Italy: volume of financial hedging of foreign exchange denominated assets/liabilities (by level of foreign trade relations)

	Number of respond-ing firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%
		(as a % of total responses)								
Share of exports										
0-24%	38	28.95	23.68	36.84	10.53	5.26	15.79	15.79	13.16	31.58
25-49%	29	31.03	10.34	41.38	6.90	3.45	17.24	24.14	17.24	34.48
50-100%	56	33.93	14.29	41.07	10.71	5.36	23.21	17.86	17.86	35.71
Total	123	31.71	16.26	39.84	9.76	4.88	19.51	18.70	16.26	34.15
Share of imports										
0-24%	55	29.09	12.73	49.09	12.73	5.45	25.45	16.36	12.73	34.55
25-49%	34	29.41	17.65	38.24	8.82	8.82	14.71	26.47	11.76	32.35
50-100%	20	50.00	25.00	15.00	10.00	.	.	15.00	30.00	40.00
Total	109	33.03	16.51	39.45	11.01	5.50	17.43	19.27	15.60	34.86

Table IV.1d. Italy: volume of financial hedging of foreign exchange denominated assets/liabilities (by main industry groups)

	Number of respond-ing firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%	to 33%	34 to 66%	67 to 100%
		(as a % of total responses)								
Basic materials industry	22	40.91	13.64	40.91	13.64	.	18.18	18.18	9.09	36.36
Iron, steel and non-ferrous metals industry	3	.	33.33	66.67	.	.	.	33.33	.	33.33
Mechanical engineering, electrical and automobile industries	61	27.87	14.75	49.18	9.84	8.20	22.95	11.48	21.31	37.70
Processing industry	29	24.14	13.79	34.48	6.90	3.45	17.24	34.48	13.79	31.03
Mining	1	100.00	.	.	100.00	.	.	.	.	100.00
Food, beverages and tobacco industry	9	44.44	44.44	.	.	.	.	22.22	11.11	11.11
Total industry	125	30.40	16.80	40.80	9.60	4.80	18.40	19.20	16.00	34.40
Building and construction										
Services	2	50.00	.	50.00	.	.	50.00	.	.	50.00
Total	127	30.71	16.54	40.94	9.45	4.72	18.90	18.90	15.75	34.65

Table IV.2a. Italy: kinds of financial hedging against exchange rate fluctuations

	No. of resp. firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66%	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)														
All firms un-weighted	137	17.5	12.4	50.4	8.0	6.6	11.7		0.7	0.7	6.6	0.7	4.4	21.1	5.8	11.7
Export weighted (respond -ing firms)	137	17.3	13.3	42.6	10.3	7.2	10.3		0.9	0.9	7.6	0.9	5.3	19.6	7.1	14.4
Export weighted (official statistics)	137	16.8	9.5	49.1	6.5	6.3	9.6		0.7	0.7	6.5	0.7	3.8	18.3	5.1	7.9
Turnover weighted (respond -ing firms)	137	17.3	13.0	44.1	10.3	7.4	10.8		1.0	1.0	8.4	1.0	5.3	20.4	7.3	13.7
Turnover weighted (official statistics)	137	20.8	12.2	52.4	6.5	6.7	10.1		0.5	0.5	4.8	0.5	3.7	18.7	4.7	13.8

Table IV.2b. Italy: kinds of financial hedging against exchange rate fluctuations (by size of company)

	No. of resp. firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)														
1-49	15	.	20.0	60.0	6.7	13.3	6.7		.	.	6.7	6.7	.	20.0	6.7	6.7
50-199	41	26.8	4.9	41.5	2.4	7.3	24.4		.	.	4.9	.	2.4	14.6	4.9	12.2
200-999	51	13.7	13.7	54.9	11.8	3.9	9.8		1.7	.	3.9	.	5.9	19.6	7.8	11.8
1,000 and above	29	20.7	17.2	48.3	10.3	6.9	.		.	3.5	13.8	.	6.9	31.0	3.5	13.8

Table IV.2c. Italy: kinds of financial hedging against exchange rate fluctuations (by level of foreign trade relations)

	No. of resp. firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)														
Share of exports 0-24%	30	16.7	23.3	56.7	6.7	.	3.3		.		13.3	3.3	3.3	10.0	10.0	10.0
25-49%	30	10.0	6.7	63.3	13.3	6.7	3.3		.		6.7	.	3.3	20.0	6.7	6.7
50-100%	65	21.5	12.3	38.5	7.7	9.2	21.5		1.5		3.1	.	4.6	26.2	4.6	16.9
Total	.	17.6	13.6	48.8	8.8	6.4	12.8		0.8		8.8	6.4	12.8	8.8	6.4	12.8
Share of imports 0-24%	62	17.7	9.7	43.5	11.2	6.5	12.9		1.6		9.7	1.6	3.2	24.2	6.5	9.7
25-49%	32	18.8	15.6	59.4	.	3.1	6.3		.		.	.	6.3	15.6	9.4	9.4
50-100%	19	10.5	10.5	68.4	5.3	5.3	5.3		.		10.5	.	.	15.8	.	10.5
Total	.	16.8	11.5	52.2	7.1	5.3	9.7		0.9		7.1	5.3	9.7	7.1	5.3	9.7

Table IV.2d. Italy: kinds of financial hedging against exchange rate fluctuations (by main industry groups)

	No. of resp. firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33%	34 to 66 %	67 to 100 %
		(as a % of total responses)														
Basic materials industry	22	18.2	18.2	31.8	9.1	4.6	4.6	.	.	.	.	.	4.6	9.1	4.6	22.7
Iron, steel and non-ferrous metals industry	3	33.3	.	66.7	.	33.3	.	.	.	.	.	.	.	33.3	.	.
Mechan. engineer., electrical and automobile industries	69	17.3	11.6	44.9	11.6	8.7	13.0	.	1.5	1.5	11.6	1.5	5.8	24.6	8.7	11.6
Processing industry	27	11.1	11.1	77.8	3.7	3.7	7.4	.	.	.	3.7	.	3.7	14.8	3.7	7.4
Mining	1	100	.	.	.	.	.	.	.	.	.	.	.	.	.	100
Food, beverages and tobacco industry	12	25.0	16.7	58.3	.	.	25.0	.	.	.	.	.	.	25.0	.	.
Total industry	134	17.9	12.7	50.8	8.2	6.7	11.2	.	0.8	0.8	6.7	0.8	4.5	20.2	6.0	11.9
Building and construction																
Services	3	.	.	33.3	.	.	33.3	.	.	.	.	.	.	66.7	.	.
Total	137	17.5	12.4	50.4	8.0	6.6	11.7	.	0.7	0.7	6.6	0.7	4.4	21.2	5.8	11.7

Table IV.3a. Italy: reasons for different forms of financial hedging

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
All firms unweighted	141	66.67	66.67	43.26	58.87	6.38
Export weighted (responding firms)	141	64.63	65.29	40.06	61.98	6.38
Export weighted (official statistics)	141	66.41	67.21	43.01	55.91	6.88
Turnover weighted (responding firms)	141	65.29	65.62	40.37	62.29	6.50
Turnover weighted (official statistics)	141	67.30	64.86	45.08	54.04	5.85

Table IV.3b. Italy: reasons for different forms of financial hedging (by size of company)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
1-49	18	61.11	72.22	44.44	22.22	0.00
50-199	39	64.10	64.10	46.15	64.10	7.69
200-999	55	67.27	69.09	43.64	61.82	5.45
1,000 and above	28	71.43	60.71	35.71	67.86	10.71

Table IV.3c. Italy: reasons for different forms of financial hedging (by level of foreign trade relations)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
Share of exports 0-24%	40	57.50	72.50	32.50	45.00	0.00
25-49%	32	68.75	65.63	53.13	50.00	3.13
50-100%	68	70.59	63.24	45.59	70.59	11.76
Total	140	66.43	66.43	43.57	58.57	6.43
Share of imports 0-24%	84	71.43	66.67	44.05	65.48	9.52
25-49%	37	62.16	62.16	35.14	48.65	2.70
50-100%	19	52.63	73.68	57.89	47.37	0.00
Total	140	66.43	66.43	43.57	58.57	6.43

Table IV.3d. Italy: reasons for different forms of financial hedging (by main industry groups)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
Basic materials industry	20	60.00	65.00	40.00	55.00	5.00
Iron, steel and non-ferrous metals industry	3	100.00	100.00	33.33	0.00	0.00
Mechanical engineering, electrical and automobile industries	73	67.12	65.75	39.73	67.12	6.85
Processing industry	30	66.67	70.00	50.00	46.67	10.00
Mining	1	100.00	0.00	100.00	100.00	0.00
Food, beverages and tobacco industry	11	54.55	54.55	45.45	45.45	0.00
Total industry	138	65.94	65.94	42.75	57.97	6.52
Building and construction						
Services	3	100.00	100.00	66.67	100.00	0.00
Total	141	66.67	66.67	43.26	58.87	6.38

Table IV.4a. Italy: other measures (business-internal measures) against exchange rate risks

	No. of respond-ing firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Incr. invoicing in local currency	Incr. invoicing in ECU	Incr. invoicing in another inter-national currency	Incr. staff involved in risk manage-ment	Others
		(answering 'yes' as a % of total responses)							
All firms un-weighted	144	77.08	26.39	27.78	23.61	2.78	21.53	11.11	5.56
Export weighted (respond-ing firms)	144.	74.35	25.16	24.05	27.94	3.45	20.33	12.06	6.88
Export weighted (official statistics)	144	78.27	26.27	29.69	21.33	2.00	22.54	10.32	4.91
Turnover weighted (respond-ing firms)	144	74.95	25.56	25.80	27.71	2.97	20.69	11.85	7.27
Turnover weighted (official statistics)	144	79.43	27.07	26.56	19.70	2.12	25.23	8.93	3.47

Table IV.4b. Italy: other measures (business-internal measures) against exchange rate risks (by size of company)

	Number of respond-ing firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Incr. invoicing in local currency	Incr. invoicing in ECU	Incr. invoicing in another inter-national currency	Incr. staff involved in risk manage-ment	Others
		(answering 'yes' as a % of total responses)							
1-49	17	52.94	23.53	23.53	52.94	5.88	23.53	0.00	5.88
50-199	35	77.14	28.57	37.14	25.71	2.86	20.00	5.71	2.86
200-999	59	76.27	28.81	27.12	22.03	1.69	25.42	11.86	3.39
1,000 and above	32	90.63	21.88	21.88	9.38	3.13	15.63	18.75	12.50

Table IV.4c. Italy: other measures (business-internal measures) against exchange rate risks (by level of foreign trade relations)

	No. of respond-ing firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another inter-national currency	Increasing staff involved in risk manage-ment	Others
		(answering 'yes' as a % of total responses)							
Share of exports									
0-24%	40	70.00	25.00	22.50	35.00	0.00	15.00	5.00	2.50
25-49%	37	75.68	18.92	35.14	21.62	5.41	27.03	8.11	5.41
50-100%	62	82.26	29.03	25.81	17.74	3.23	22.58	16.13	8.06
Total	139	76.98	25.18	27.34	23.74	2.88	21.58	10.79	5.76
Share of imports									
0-24%	77	74.03	24.68	28.57	24.68	2.60	16.88	16.88	7.79
25-49%	36	80.56	30.56	27.78	16.67	5.56	25.00	2.78	2.78
50-100%	18	77.78	33.33	16.67	38.89	0.00	27.78	0.00	0.00
Total	131	76.34	27.48	26.72	24.43	3.05	20.61	10.69	5.34

Table IV.4d. Italy: other measures (business-internal measures) against exchange rate risks (by main industry groups)

	No. of responding firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Incr. invoicing in local currency	Incr. invoicing in ECU	Incr. invoicing in another international currency	Incr. staff involved in risk management	Others
		(answering 'yes' as a % of total responses)							
Basic materials industry	22	72.73	22.73	4.55	27.27	9.09	18.18	13.64	0.00
Iron, steel and non-ferrous metals industry	2	100.00	0.00	50.00	0.00	0.00	50.00	0.00	0.00
Mechanical engineering, electrical and automobile industries	76	75.00	26.32	31.58	30.26	1.32	21.05	11.84	10.53
Processing industry	32	84.38	25.00	40.63	6.25	0.00	25.00	9.38	0.00
Mining	1	100.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00
Food, beverages and tobacco industry	8	75.00	62.50	12.50	25.00	0.00	12.50	0.00	0.00
Total industry	141	77.30	26.95	28.37	23.40	2.13	21.99	10.64	5.67
Building and construction									
Services	3	66.67	0.00	0.00	33.33	33.33	0.00	33.33	0.00
Total	144	77.08	26.39	27.78	23.61	2.78	21.53	11.11	5.56

Table V.1a. Italy: banks' commissions and other processing fees for the exchange of currencies

	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions answering 'yes' as a % of total responses	Since the late 1980s these costs have...		
		<0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%		...not changed	...incr.	...decr.
		(as a % of total responses)						(as a % of total responses)		
All firms un-weighted	181	68.51	28.18	2.76		0.55	35.91	35.36	15.47	39.23
Export weighted (responding firms)	181	69.40	25.97	3.93		0.06	36.29	33.49	15.11	40.84
Export weighted (official statistics)	181	69.33	27.11	2.61		0.85	34.17	35.08	15.34	39.29
Turnover weighted (responding firms)	181	68.89	26.74	3.87		0.13	36.48	33.97	15.19	40.87
Turnover weighted (official statistics)	181	68.51	27.78	2.14		1.47	32.5	37.17	14.89	37.61

Table V.1b. Italy: banks' commissions and other processing fees for the exchange of currencies (by size of company)

	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions answering 'yes' as a % of total responses	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4 %		... not changed	...incr.	...decr.
		(as a % of total responses)						(as a % of total responses)		
1-49	27	37.04	51.85	11.11		.	29.63	11.11	29.63	29.63
50-199	54	57.41	38.89	1.85		1.85	40.74	46.30	12.96	37.04
200-999	65	80.00	18.46	1.54		.	35.38	36.92	13.85	40.00
1,000 and above	34	88.24	11.76	.		.	35.29	35.29	11.76	47.06

Table V.1c. Italy: banks' commissions and other processing fees for the exchange of currencies (by level of foreign trade relations)

	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions (answering 'yes' as a % of total responses)	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%		... not changed	...incr.	...decr.
		(as a % of total responses)						(as a % of total responses)		
Share of exports										
0-24%	56	67.86	28.57	3.57		.	35.71	35.71	14.29	37.50
25-49%	42	66.67	28.57	2.38		2.38	40.48	28.57	16.67	42.86
50-100%	78	71.79	25.64	2.56		.	35.90	39.74	15.38	37.18
Total	176	69.32	27.27	2.84		0.57	36.93	35.80	15.34	.
Share of imports										
0-24%	112	62.50	34.82	2.68		.	37.50	33.93	17.86	38.39
25-49%	42	80.95	16.67	.		2.38	33.33	33.33	11.90	40.48
50-100%	23	69.57	21.74	8.70		.	34.78	39.13	13.04	43.48
Total	177	67.80	28.81	2.82		0.56	36.16	34.46	15.82	

Table V.1d. Italy: banks' commissions and other processing fees for the exchange of currencies (by main industry groups)

	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions (answering 'yes' as a % of total responses)	Since the late 1980s these costs have...		
		<0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%		...not changed	...incr.	...decr.
		(as a % of total responses)						(as a % of total responses)		
Basic materials industry	27	77.78	18.52	3.70		.	33.33	29.63	14.81	40.74
Iron, steel and non-ferrous metals industry	4	.	75.00	.		25.00	.	25.00	25.00	50.00
Mechanical engineering, electrical and automobile industries	91	65.93	29.67	4.40		.	38.46	35.16	15.38	41.76
Processing industry	40	80.00	20.00	.		.	30.00	37.50	15.00	35.00
Mining	1	100.00	.	.		.	.	100.00	.	.
Food, beverages and tobacco industry	15	60.00	40.00	.		.	46.67	40.00	13.33	33.33
Total industry	178	69.10	27.53	2.81		0.56	35.39	35.39	15.17	39.33
Building and construction										
Services	3	33.33	66.67	.		.	66.67	33.33	33.33	33.33
Total	181	68.51	28.18	2.76		0.55	35.91	35.36	15.47	39.23

Table V.2a. Italy: costs for personnel and equipment for administering foreign currency transactions

	No. of responding firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firm's foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4 %	... not changed	...incr.	...decr.
			(as a % of total responses)					(as a % of total responses)		
All firms unweighted	84	43.98	76.19	11.90	3.57	4.76		35.71	36.90	20.24
Export weighted (responding firms)	84	45.24	70.88	13.74	4.66	6.22		31.81	38.03	21.81
Export weighted (official statistics)	84	43.62	77.14	11.18	3.33	4.44		35.41	38.20	18.66
Turnover weighted (responding firms)	84	45.05	70.92	13.60	4.93	6.57		31.35	38.82	22.24
Turnover weighted (official statistics)	84	45.08	80.26	10.56	2.36	3.14		37.01	35.94	19.77

Table V.2b. Italy: costs for personnel and equipment for administering foreign currency transactions (by size of company)

	No. of responding firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firm's foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4 %	... not changed	...incr.	...decr.
			(as a % of total responses)					(as a % of total responses)		
1-49	6	23.08	66.67	16.67	.	.		16.67	33.33	16.67
50-199	19	35.19	78.95	10.53	5.26	5.26		52.63	26.32	15.79
200-999	34	52.31	70.59	14.71	2.94	5.88		29.41	50.00	17.65
1,000 and above	24	70.59	83.33	8.33	4.17	4.17		37.50	25.00	29.17

Table V.2c. Italy: costs for personnel and equipment for administering foreign currency transactions (by level of foreign trade relations)

	No. of respond-ing firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firm's foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4 %	... not changed	...incr.	...decr.
			(as a % of total responses)					(as a % of total responses)		
Share of exports										
0-24%	21	34.43	76.19	19.05	.	.		33.33	33.33	14.29
25-49%	21	47.73	71.43	4.76	9.52	14.29		33.33	47.62	14.29
50-100%	40	49.38	80.00	10.00	2.50	2.50		40.00	32.50	25.00
Total	82	.	76.83	10.98	3.66	4.88		36.59	36.59	19.51
Share of imports										
0-24%	53	43.80	69.81	11.32	5.66	7.55		32.08	41.51	22.64
25-49%	20	47.62	90.00	10.00	.	.		25.00	35.00	25.00
50-100%										
Total	73	.	75.34	10.96	4.11	5.48		30.14	39.73	23.29

Table V.2d. Italy: costs for personnel and equipment for administering foreign currency transactions (by main industry groups)

	No. of respond-ing firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firm's foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4 %	... not changed	...incr.	...decr.
			(as a % of total responses)					(as a % of total responses)		
Basic materials industry	14	48.28	78.57	14.29	.	.		42.86	28.57	14.29
Iron, steel and non-ferrous metals industry	1	20	100.00	.	.	.		.	100.00	.
Mechanical engineering, electrical and automobile industries	42	44.68	66.67	14.29	7.14	9.52		26.19	42.86	26.19
Processing industry	18	41.86	88.89	5.56	.	.		44.44	33.33	11.11
Mining	1	100	100.00	.	.	.		.	.	100.00
Food, beverages and tobacco industry	7	43.75	85.71	14.29	.	.		71.43	14.29	14.29
Total industry	83	44.15	75.90	12.05	3.61	4.82		36.14	36.14	20.48
Building and construction										
Services	1	33.33	100.00	.	.	.		.	100.00	.
Total	84	43.98	76.19	11.90	3.57	4.76		35.71	36.90	20.24

Table V.3a. Hedging costs in Italy

	No. of respond-ing firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
		(as a % of total responses)					(as a % of total responses)		
All firms unweighted	80	78.75	16.25	3.75	1.25	1.25	46.25	15.00	36.25
Export weighted (responding firms)	80	77.41	16.15	4.35	1.45	0.28	46.10	12.71	37.88
Export weighted (official statistics)	80	82.34	13.42	3.11	1.03	1.73	46.67	17.17	35.15
Turnover weighted (responding firms)	80	76.91	16.59	4.60	1.53	0.38	45.25	13.26	37.62
Turnover weighted (official statistics)	80	82.52	14.45	2.20	0.73	1.57	46.44	18.86	35.09

Table V.3b. Hedging costs in Italy (by size of company)

	No. of respond-ing firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
		(as a % of total responses)					(as a % of total responses)		
1-49	12	66.67	16.67	16.67	.	.	41.67	16.67	25.00
50-199	25	64.00	28.00	4.00	.	4.00	64.00	20.00	16.00
200-999	29	82.76	13.79	.	3.45	.	44.83	10.34	44.83
1,000 and above	15	100.00	.	.	.	.	20.00	13.33	60.00

Table V.3c. Hedging costs in Italy (by level of foreign trade relations)

	No. of respond-ing firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
		(as a % of total responses)					(as a % of total responses)		
Share of exports									
0-24%	20	70.00	25.00	5.00	.	5.00	60.00	15.00	35.00
25-49%	23	73.91	21.74	4.35	.	.	39.13	21.74	30.43
50-100%	37	86.49	8.11	2.70	2.70	.	43.24	10.81	40.54
Total	80	78.75	16.25	3.75	1.25	1.25	46.25	15.00	36.25
Share of imports									
0-24%	54	75.93	18.52	3.70	1.85	1.85	46.30	12.96	38.89
25-49%	20	85.00	15.00	.	.	.	45.00	15.00	35.00
50-100%	5	80.00	.	20.00	.	.	40.00	40.00	20.00
Total	79	78.48	16.46	3.80	1.27	1.27	45.57	15.19	36.71

Table V.3d. Hedging costs in Italy (by main industry groups)

	No. of responding firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
		(as a % of total responses)					(as a % of total responses)		
Basic materials industry	10	90.00	10.00	.	.	.	60.00	10.00	40.00
Iron, steel and non-ferrous metals industry	1	100.00	.	.	.	.	.	100.00	.
Mechanical engineering, electrical and automobile industries	45	71.11	20.00	6.67	2.22	.	40.00	13.33	37.78
Processing industry	17	100.00	.	.	.	5.88	52.94	17.65	35.29
Mining	1	100.00	.	.	.	.	.	.	100.00
Food, beverages and tobacco industry	80	78.75	16.25	3.75	1.25	1.25	46.25	15.00	36.25
Total industry									
Building and construction									
Services	6	50.00	50.00	.	.	.	66.67	16.67	16.67
Total	80	78.75	16.25	3.75	1.25	1.25	46.25	15.00	36.25

Table V.4a. Italy: costs induced by prolonged time period for money transfers

	No. of respond-ing firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have...					
				for EU currencies...			...for non-EU currencies...		
				... not changed	...incr.	...decr.	... not changed	..incr.	...decr.
				(as a % of total responses)					
All firms unweighted	164	2.32	3.01	47.56	4.27	42.07	54.27	3.05	29.27
Export weighted (responding firms)	164	2.32	3.28	48.96	5.02	40.53	52.30	2.69	32.21
Export weighted (official statistics)	164	2.28	2.94	46.96	3.37	42.95	54.94	1.71	29.53
Turnover weighted (responding firms)	164	2.30	3.23	49.40	5.01	40.20	53.23	2.55	30.99
Turnover weighted (official statistics)	164	2.31	2.84	49.09	2.70	41.70	56.61	1.53	29.34

Table V.4b. Italy: costs induced by prolonged time period for money transfers (by size of company)

	No. of respond-ing firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have...					
				for EU currencies...			...for non-EU currencies...		
				... not changed	...incr.	...decr.	... not changed	...incr.	...decr.
				(as a % of total responses)					
1-49	23	4.74	4.17	26.09	.	47.83	21.74	4.35	30.43
50-199	45	2.39	3.37	55.56	6.67	37.78	64.44	4.44	24.44
200-999	60	2.12	3.08	43.33	5.00	50.00	51.67	1.67	36.67
1,000 and above	33	1.00	1.68	60.61	3.03	33.33	69.70	3.03	24.24

Table V.4c. Italy: costs induced by prolonged time period for money transfers (by level of foreign trade relations)

	No. of responding firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have...					
				for EU currencies...			...for non-EU currencies...		
				... not changed	...incr.	...decr.	... not changed	...incr.	...decr.
				(as a % of total responses)					
Share of exports									
0-24%	46	2.37	2.63	56.52	2.17	30.43	63.04	.	21.74
25-49%	38	2.84	4.21	42.11	10.53	39.47	47.37	7.89	31.58
50-100%	75	2.12	2.73	44.00	2.67	50.67	52.00	2.67	32.00
Total	159	2.36	3.06	47.17	4.40	42.14	54.09	3.14	28.93
Share of imports									
0-24%	102	2.61	3.36	41.18	4.90	49.02	50.98	3.92	30.39
25-49%	38	1.58	2.16	55.26	2.63	36.84	60.53	2.63	28.95
50-100%	20	2.15	2.65	55.00	5.00	25.00	60.00	.	20.00
Total	160	2.31	2.99	46.25	4.38	43.13	54.38	3.13	28.75

Table V.4d. Italy: costs induced by prolonged time period for money transfers (by main industry groups)

	No. of responding firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have...					
				for EU currencies...			...for non-EU currencies...		
				... not changed	...incr.	...decr.	... not changed	...incr.	...decr.
				(as a % of total responses)					
Basic materials industry	25	2.64	3.88	44.00	4.00	48.00	44.00	4.00	48.00
Iron, steel and non-ferrous metals industry	4	0.75	1.25	50.00	.	50.00	50.00	.	50.00
Mechanical engineering, electrical and automobile industries	84	2.20	3.13	52.38	5.95	36.90	55.95	2.38	26.19
Processing industry	35	2.26	2.49	37.14	.	51.43	57.14	.	25.71
Mining	1	2.00	2.00	100.00	.	.	100.00	.	.
Food, beverages and tobacco industry	12	3.08	2.25	58.33	.	33.33	66.67	.	16.67
Total industry	161	2.31	2.99	48.45	3.73	41.61	55.28	1.86	29.19
Building and construction									
Services	3	3.00	4.33	.	33.33	66.67	.	66.67	33.33
Total	164	2.32	3.01	47.56	4.27	42.07	54.27	3.05	29.27

IV. Country report IV: Spain

IV.1. Summary

The survey carried out in Spain about the costs of managing multiple currencies shows interesting results. The most outstanding conclusion is the great impact that the single market and its particular measures have had on the costs of managing multiple currencies. Most firms claim that it has influenced positively the financial market and that it has greatly contributed to the lowering of prices for banking services.

During the 1970s and the 1980s, the Spanish financial system went through a deep process of reform aimed at deregulating the system and making it more similar to other developed European financial systems. Before this process, the Spanish financial system used to be strongly regulated and protected. The requirements to open a new bank were highly restrictive and foreign banks were not allowed in, so there were few banks which operated almost like an oligopoly. The accession of Spain to the European Community in 1986 gave a strong impulse to the deregulation process, especially since Spain had to adapt its financial and banking laws to the Community's directives for banking coordination. The reform relaxed the requirements to open new banks and put all European banks at the same level as Spanish banks. As a result there was a very important increase in competition which has had a crucial role in the evolution of the financial system since the late 1980s. Competition has stimulated the development of the system and has pushed down the prices of most financial services. The effect on bank commissions is specially noticeable in the survey.

According to the Spanish survey, the three most popular business strategies against exchange rate fluctuations are financial hedging, in-house measures and re-orientation of exports to countries with more stable exchange rates *vis-à-vis* the Spanish peseta. Most of the firms say that their strategies are prompted by monthly short-term fluctuations. Among the alternatives for financial hedging, the most popular is the exchange rate insurance, and the most important reason for the choice is the cost of the measures. To the question about other potential measures for protecting against exchange rate fluctuations, the most frequent answers were increased invoicing in local currency and increasing staff involved in risk management. Pricing policy is also important in this context.

For most of the companies surveyed, bank commissions and other processing fees that accrue when exchanging foreign currency represent less than 1% of the total exchanged. More than half of the companies find these costs lower for intra-EU transactions. Half of the interviewed companies claim that these costs have decreased since the late 1980s, 18% say that they have not changed and just 14% say that they have increased.

For 63% of the firms in the Spanish sample, annual costs for hedging various currencies represent less than 1% of their foreign trade volume. Most firms claim that these costs have not changed since the late 1980s, while 20% say they have decreased and another 13% say they have increased.

According to the survey, the average additional period for a bank transfer involving foreign currency is two days for EU currencies and three days for non-EU currencies. Most firms say that these periods have decreased since the late 1980s for both EU and non-EU currencies. However, the percentage in the case of EU currencies is higher.

IV.2. The questionnaires

IV.2.1. Representativity and characteristics of the responding firms

Representativity of the sample

For the Spanish case, the survey was conducted by mailing the questionnaire to 2,592 firms from which we obtained a total of 210 answers. Telephone prompting was required to attain the final sample.

The geographical scope of this survey is the whole national territory. The parent sample is made up of 9,123 firms which in the last three years have exported more than PTA 5 million worth of goods and services. Firms were classified in sectors and subsectors in order to obtain the best disaggregated information possible. The sample for the mailed survey was obtained through a random single stage stratified sampling. The stratification follows the distribution of the firms according to their sector of activity and their export turnover.

Table I.1.1. Exports of responding firms in Spain

Sectors	Responding firms		Exports of responding firms		Exports according to official statistics	
	Number	In %[1]	Value in local currency (million)	In %[2]	Value in local currency (million)	In % of total exports
			1994		1994	
Basic materials industry	29	14	91.734	14	1,115,229	11
Iron, steel and non-ferrous metals industry	20	10	12.656	2	853,233	8
Mechanical engineering, electrical and automobile industries	41	20	438.552	66	4,327,458	43
Processing industry	75	36	39.605	6	1,472,006	14
Mining	3	1	2.764	0	354,976	3
Food, beverages and tobacco industry	22	10	17.099	3	451,410	4
Total industry	190	90	602.411	91	8,574,311	84
Building and construction	2	1	49.677	7	0	0
Services	18	9	10.865	2	1,596,659	16
Total	210	100	662.953	100	10,170,970	100

[1] Of all responding firms. [2] Of total exports of all responding firms.

Total exports have been disaggregated into eight sectors using our sample of responding firms. Then, the share of total exports has been calculated for each sector and compared with official statistics. The results using our sample generally reflect the structure of the share of total exports as reported by official statistics. For example, according to both our sample of responding firms and official statistics, firms in the mechanical engineering, electrical and

automobile industries account for the largest share of total exports, while firms in the mining industry comprise nearly the smallest share of total exports, and the rest of the industries fall pretty evenly in between.

A closer look reveals some interesting characteristics of our sample of responding firms. For example, in the case of mining, our sample only contains three firms of which none reported a considerable volume of exports therefore it falls to the bottom in terms of export share, and, as a result, is in line with official statistics. In examining the construction industry, the firms in our sample reported almost PTA 50,000 million in exports, which makes it the third largest exporting industry of the eight industries considered, while official statistics report no exports for construction. This is because the exports counted by our surveyed firms are not real exports from the point of view of the National Accounts. For the firms, construction projects they have abroad are considered as export activities, while for the National Accountant those activities are not considered as merchandise which cross the Spanish border. These projects are normally carried out using foreign resources by the company's offices abroad, so they cannot be considered as an export of domestic production even though the company considers them an international sale or an export. And finally, according to official statistics, the service industry accounts for the second largest share of total exports, while in our sample, it ranks near the bottom as a share of total exports. This suggests that our sample is not very representative of the overall service sector. We will come back to this point later in the discussion.

Table I.1.2. Value of output of responding firms in Spain

Sectors	Responding firms		Value of output of responding forms		Value of output[3] according to official statistics	
	Number	In %[1]	Value in local currency (million)	In %[2]	Value in local currency (million)	In % of total output
			1994		1994	
Basic materials industry	29	14	785,889	34	7,261,510	7
Iron, steel and non-ferrous metals industry	20	10	73,164	3	4,060,786	4
Mechanical engineering, electrical and automobile industries	41	20	659,993	29	7,140,640	7
Processing industry	75	36	99,779	4	6,265,884	6
Mining	3	1	155,960	7	566,268	1
Food, beverages and tobacco industry	22	10	122,802	5	7,190,149	7
Total industry	190	90	1,897,587	82	32,485,237	32
Building and construction	2	1	390,806	17	8,890,247	9
Services	18	9	24,922	1	60,612,531	59
Total	210	100	2,313,315	100	1,02E+08	100

[1] Of all responding firms. [2] Of total output (turnover from domestic production) of all responding firms.
[3] Gross output, not value added.

As was done for exports, the output of each industry as a share of total output as reported by our sample of responding firms has been compared with output by industry according to official statistics. The most striking difference between our sample and official statistics is in the service industry. While services account for nearly 60% of total output according to official statistics, in our sample, services only account for 1% of total output, the lowest share of total output of the eight sectors. Once again, our sample lacks significant representation in the service sector because we mailed the questionnaires to a sample of exporting firms. Thus, in that initial sample, there was not enough representation of the services sector in terms of value of output because services firms do little exporting activities. We chose this sample for mailing the surveys because exporting firms are the ones mainly concerned with the sort of questions asked in the questionnaire. In fact, we got several replies saying they were not answering the questionnaire because they had nothing to say about the subject.

If we analyse the distribution by industry, we see that, in terms of output, the different industrial sectors are reasonably represented in our sample except for the food, beverages and tobacco industry.

Table I.1.3. Employment by responding firms in Spain

Sectors	Number of mailed surveys	Responding firms		Employees of responding firms		Employees according to official statistics	
		Number	In %[1]	Employees (1,000)	In %[2]	Employees (1,000)	In %
				1994		1994	
Basic materials industry		29	14	5.7	9	319,631	3
Iron, steel and non-ferrous metals industry		20	10	2.1	3	276,014	3
Mechanical engineering, electrical and automobile industries		41	20	22.8	36	527,286	5
Processing industry		75	36	5.6	9	861,269	8
Mining		3	1	2.0	3	55,300	1
Food, beverages and tobacco industry		22	10	2.6	4	357,900	3
Total industry		190	90	40.9	65	2,397,400	23
Building and construction		2	1	21.0	33	1,090,200	10
Services		18	9	1.0	2	7,080,200	67
Total		210	100	63.0	100	10,567,800	100

[1] Of all responding firms. [2] Of total employees of all responding firms.

In this table, employment as a share of total employment has been compared using our sample of responding firms and official statistics. As was the case with output, it appears that the service sector is poorly represented in our sample because it only comprises 2% of total

employment, while according to official statistics, the service sector accounts for 67% of total employment in Spain. Consequently, employment is heavily accounted for in the industrial sectors. Precisely, 65% of those employed by firms in our sample work in one of the six industrial sectors, but official statistics report that only about 23% of all workers are employed in these sectors.

If we took the services sector away from the analysis and recalculated the employment shares for the remaining sectors, we would find that our sample is fairly representative of the whole. In any case, in our sample there is a surplus in the share of the mechanical engineering, electrical and automobile industries and a deficit in the share of the processing industry.

Table I.1.4. Comparison of export shares[1] of responding firms, and of the total economy and its sectors in Spain

Export shares Sectors	Export shares of responding firms in given sectors and for all responding firms, %	Sectoral export shares and the export share of the total economy according to official statistics, %
Raw materials	12	15
Iron, steel and non-ferrous metals	17	21
Mechanical engineering, electrical and automobile industries	66	61
Processing	40	23
Mining	2	63
Food, beverages and tobacco	14	6
Total industry	32	26
Building and construction	13	0
Services	44	3
Total	29	10

[1] Exports as a % of total turnover from domestic production.

Looking at exports as a share of total output, our sample of responding firms largely reflects official statistics, with two exceptions. According to our sample, the mining sector's export share accounts for less than 2% of total output, while according to official statistics it comprises nearly 63% or the largest share of total output. Another aberration appears once again in the services sector where the export share of our sample of responding firms accounts for almost 44% of the total, thus making it the second largest sector in terms of export share. However, according to official statistics, the export share of the services sector accounts for under 3% of the total, which is the second lowest share of all the sectors. As discussed earlier, this difference is due to the fact that we took our sample from a directory of exporting firms and therefore, our representatives of the services sector are companies which conduct export activities, which are not the majority of the firms in this sector.

In terms of the total industry aggregate, the exports of sectors one to six equal about a 32% share of total output, very close to the 26% share aggregated for the same sectors according to official statistics. However, in comparing the total export share for all sectors in our sample,

about 29%, with the total export share according to official statistics, about 10%, we find that the influence of the service sector on the total is very important because of its large share of total national output. If we took this sector away, the export share for the rest would more closely resemble official figures.

Characteristics of the firms

The following tables show the main characteristics of the firms in the Spanish sample.

Table I.2.1. Characteristics of responding firms in Spain (by firm size – number of employees)

Employees	All responding firms		Micro firms: up to 10 employees		Small firms: 10 to 99 employees		Medium size: 100 to 499 employees		Large firms: 500 and more employees	
Sector	Number of firms	in %	Number of firms	in %[1]	Number of firms	in %[1]	Number of firms	in %[1]	Number of firms	in %[1]
Basic materials industry	29	100[2]	3	10	13	45	7	24	3	10
Iron, steel and non-ferrous metals industry	20	100	2	10	13	65	3	15	1	5
Mechanical engineering, electrical and automobile industries	41	100	3	7	19	46	13	32	6	15
Processing industry	75	100	7	9	51	68	16	21	1	1
Mining	3	100	0	0	2	67	0	0	1	33
Food, beverages and tobacco industries	22	100	0	0	14	64	6	27	1	5
Total industry	190	100	15	8	112	59	45	24	13	7
Building and construction	2	100	0	0	1	50	0	0	1	50
Services	18	100	2	11	13	72	3	17	0	0
Total	210	100	17	8	126	60	48	23	14	7

[1] As a % of the total number of firms in each sector. [2] Note that percentage shares do not always add up to 100 because not all firms answer every question. The same will occur for other percentage distributions in other questions thoughout the report.

In order to evaluate the size distribution of the firms in our sample, we have divided them into four groups. More than half, or 60%, of the companies in our sample fall into the category of a small firm, defined as a firm with anywhere from 10 to 99 employees. Then about 23% of the firms in our sample are medium-sized, with from 100 to 499 employees, and 17% fall into the range of a micro firm, of less than ten employees. As for large firms, with 500 or more employees, only 7% of our sample qualify as this size.

By sector, the results reflect the aggregate distribution of the firms as discussed above. Note that basic materials is the sector with the lowest percentage of small firms and services is the one with the highest percentage.

We should note here that the percentages do not always add up to 100 for each sector because not all firms answer the question which asked for the number of employees employed by the firm. In this case, the sum of the percentages of each category of firm size (micro, small, medium, large) may not equal 100% of the total number of firms in each sector.

Of our sample of total firms in the raw materials sector, almost half are small-sized and nearly one-quarter are medium-sized firms. As for large firms and micro firms in this sector, each account for 10% of the total sample. In the iron, steel and non-ferrous metals sector, the majority are small firms, followed by 15% of medium-sized firms, 10% of micro firms, and 5% of large firms. In sector three, mechanical engineering, electrical and automobile industries, the number of small firms versus medium-sized firms is more evenly distributed between the two, at 46% and 32% respectively. In the processing sector, 68% are small firms, 21% are medium-sized firms, and just one firm is considered large. Since there are only three firms in the mining sector, two fall into the category of a small firm and the other is a large firm. Sector six, food, beverages and tobacco, resembles the others in that it is mostly comprised of small firms, followed by medium-sized firms. Also, this sector has only one large firm and no micro firms. The building and construction sector only has two firms of which one is a small firm and the other is a large firm. And finally, the services sector is mainly composed of small firms, 72%, while 17% are medium-sized and 11% are micro firms. There are no large firms in the services sector from our sample.

Our sample of responding firms shows that exports account for a significant portion of total turnover. About 40% of the responding firms export a share of between 50 and 100% of total output, another 30% of firms export between 25 and 49% of total output, and the remaining firms export a share of 24% or less of total output. These results are not surprising since our mailing of the questionnaires was aimed at firms that export.

Evaluating the characteristics of the firms by sector, we also find that the majority of the firms' export share of total output is over 50%. The iron steel and non-ferrous metals industry together with services are the sectors with the largest export shares, while the food, beverages and tobacco industry is the sector with the smallest share of exports. The construction sector is split fifty-fifty between the smaller and the larger ranges of export shares because in our sample has only two firms, one in each category. Therefore, we should be careful in drawing conclusions about this sector here and throughout the study.

Table I.2.2.1. Characteristics of responding firms in Spain (by export share[1])

Export share / Sectors	All responding firms		up to 24%		25-49%		50-100%	
	Number of firms	in %	Number of firms	in %[2]	Number of firms	in %[2]	Number of firms	in %[2]
Basic materials industry	29	100	9	31	7	24	12	41
Iron, steel and non-ferrous metals industry	20	100	4	20	6	30	10	50
Mechanical engineering, electrical and automobile industries	41	100	11	27	15	37	15	37
Processing industry	75	100	15	20	24	32	34	45
Mining	3	100	1	33	1	33	1	33
Food, beverages and tobacco industry	22	100	12	55	5	23	5	23
Total industry	190	100	52	27	58	31	77	41
Building and construction	2	100	1	50	0	0	1	50
Services	18	100	5	28	4	22	8	44
Total	210	100	58	28	62	30	86	41

[1] Exports as a % of total turnover from domestic production. [2] As a % of the number of responding firms in each sector. (Sums to 100% in each sector)

Table I.2.2.2. Characteristics of responding firms in Spain (by import shares[1])

Import share / Sector	All responding firms		up to 24%		25-49%		50-100%	
	Number of firms	in %	Number of firms	in %[2]	Number of firms	in %[2]	Number of firms	in %[2]
Basic materials industry	29	100	19	66	5	17	4	14
Iron, steel and non-ferrous metals industry	20	100	17	85	1	5	2	10
Mechanical engineering, electrical and automobile industries	41	100	35	85	2	5	4	10
Processing industry	75	100	67	89	5	7	1	1
Mining	3	100	3	100	0	0	0	0
Food, beverages and tobacco industry	22	100	22	100	0	0	0	0
Total industry	190	100	163	86	13	7	11	6
Building and construction	2	100	2	100	0	0	0	0
Services	18	100	11	61	2	11	4	22
Total	210	100	176	84	15	7	15	7

[1] Imports as a % of total turnover from domestic production. [2] As a % of the number of responding firms in each sector. (Sums to 100% in each sector.)

In contrast to exports, imports do not comprise a significant portion of total turnover according to our sample. About 84% of the responding firms import a share of less than 25% of total output. The two sectors that have the largest percentages of high import shares are raw materials and services. Three sectors have firms that are all in the under-25% range. They are mining; food, beverages and tobacco; and building and construction. This is again due to the fact that the source of our sample is a directory of exporting firms. In the services sector we get bigger shares because we mainly have wholesale dealers who sometimes import what they sell.

Table I.2.3.1. Characteristics of responding firms in Spain (by production facilities abroad)

Regions	Number of responding firms	Facilities in: ERM countries	Facilities in: EU /non-ERM countries	Facilities in: the USA	Facilities: Elsewhere
Sectors	% of responding firms				
Basic materials industry	29	7	10	7	7
Iron, steel and non-ferrous metals industry	20	0	0	0	0
Mechanical engineering, electrical and automobile industries	41	5	2	0	0
Processing industry	75	1	1	0	3
Mining	3	0	0	0	0
Food, beverages and tobacco industry	22	0	0	0	5
Total industry	190	3	3	1	3
Building and construction	2	50	0	0	50
Services	18	6	0	0	0
Total	210	3	2	1	3

Table I.2.3.1 shows the percentage of firms of our sample that report having production facilities in the different areas. Therefore, a company which has production facilities everywhere would be accounted for in all columns. Consequently, these percentages could perfectly add up to more than 100, which is not the case given that in our sample very few companies have facilities abroad.

In fact, there are no firms with production facilities abroad in sector two, iron, steel and non-ferrous metals, and sector five, mining. The sector with the largest percentage of production facilities abroad is raw materials, where 7% of the firms claim to have production facilities in an ERM country, 10% in a country within the EU but outside the ERM, 7% in the USA and another 7% elsewhere. The large representation of production facilities abroad in the building and construction sector (50% in an ERM country and 50% elsewhere) should be interpreted carefully since there are only two firms in the sector.

Our sample consists of firms with greater international presence through sales offices abroad than production facilities. Mining is the only sector without any firms that have sales offices abroad. And once again, the building and construction sector should be handled with care because it registers a large percentage of sales offices abroad but it only has two firms, of which one or both have sales offices in the ERM and elsewhere. The two sectors with the largest percentage of firms with sales offices abroad are the raw materials sector, which was also the leading sector for firms with production facilities abroad, and the iron, steel and non-ferrous metals sector, which has no firms with production facilities abroad.

Table I.2.3.2. Characteristics of responding firms – by own sales offices abroad

Regions	Number of responding firms	Own sales offices in: ERM countries	Own sales offices in: EU /non-ERM countries	Own sales offices in: the USA	Own sales offices: Elsewhere
Sectors	% of responding firms				
Basic materials industry	29	10	10	7	17
Iron, steel and non-ferrous metals industry	20	25	15	10	0
Mechanical engineering, electrical and automobile industries	41	17	7	5	5
Processing industry	75	11	5	1	8
Mining	3	0	0	0	0
Food, beverages and tobacco industry	22	0	5	14	5
Total industry	190	12	7	5	7
Building and construction	2	50	0	0	50
Services	18	17	6	0	6
Total	210	13	7	5	8

Table II.1. Distribution of Spanish exports and imports, 1994

Trade Regions	Responding firms		According to official statistics	
	Exports	Imports	Exports	Imports
EUR-12 total of which	76.68	93.76	66.66	59.09
Belgium/Luxembourg	3.31	1.23	6.73	6.9
France	45.87	63.76	18.9	16.78
Germany	4.95	12.51	14.61	14.95
Ireland	0.10	0.12	0.41	0.87
Italy	12.17	1.84	9.08	8.45
Netherlands	0.84	0.52	.	.
UK	3.15	9.38	8.23	7.44
Other West European countries	3.02	0.43	5.16	6.18
USA	3.35	0.64	4.81	7.3
Japan	0.45	0.68	0.93	4.29
Rest of world	16.39	4.44	22.45	23.15
Total	100	100	100	100

Note: official statistics for the Netherlands are grouped with Belgium and Luxembourg.

The distribution of exports and imports to the specified regions of the EU, other Western European countries, the USA, Japan and the rest of the world (ROW), of our sample of responding firms shows that our sample largely reflects the distribution according to official statistics. The majority of trade occurs within the EUR-12 of which the biggest trading partner is France according to our sample as well as official statistics. Trade with Japan and the USA is marginal according to our sample and official statistics. After the EU, countries of the ROW are the most important trading partners. According to our sample, Spain sends more than 16% of its total exports to the ROW, while official statistics report that figure to be more than 22%. As for imports from the ROW, the firms in our sample import less than 5% of total imports from this region, while official statistics report a much greater share, about 23%, of total imports that come from the ROW.

Table II.2.1. Invoicing practices in Spain (exports)

Currencies / Sectors	Number of responding firms	... % of responding firms invoice in:					
		Local currency		DM	US dollar	British pound	Others
		less than 100%	100%				
Basic materials industry	29	62	10	48	76	10	55
Iron, steel and non-ferrous metals industry	20	55	25	45	55	30	50
Mechanical engineering, electrical and automobile industries	41	73	15	41	54	27	59
Processing industry	75	73	21	41	57	24	41
Mining	3	67	33	33	67	0	33
Food, beverages and tobacco industry	22	59	27	27	55	23	55
Total industry	190	68	19	41	59	23	49
Building and construction	2	50	0	100	100	0	100
Services	18	61	11	67	33	33	39
Total	210	67	19	44	57	23	49

Table II.2.1 shows the percentages of firms which reported using the listed currencies in their invoicing practices. Since firms usually operate with more than one currency, the percentages should not be added up because most firms would be counted several times.

Our sample of responding firms shows that the majority of invoices for exports are conducted in the local currency, Spanish pesetas, followed by the US dollar as the second most-used currency for transactions. The third most popular is in the category of other currencies which includes the Italian lira and the Portuguese escudo, two popular choices listed by our firms. The German mark is the fourth most-used currency, and finally the British pound is used the least.

The sectors reporting the highest percentage of firms that invoice in pesetas are sector three, mechanical engineering, electrical and automobile industries, and sector four, processing, in which 94% of responding firms invoice part or all of their exports in pesetas. The sector with the lowest percentage of firms that use pesetas in their invoicing practices is construction (the sector that consists of only two firms). Then follow basic materials and services, which both recorded a total of 72% of firms using pesetas in their invoices. Of those firms that invoice exports in pesetas, all sectors except construction show that at least 10% of them invoice all of their exports in pesetas. The highest percentage is in the mining sector in which 33% of the firms invoice in pesetas, while the lowest percentage of firms that conduct transactions entirely in pesetas, excluding the construction sector, is in the raw materials sector.

The largest percentage of firms, 67%, that use the DM to invoice exports is in the services sector, while in the food, beverages and tobacco industry only 27% of firms work with marks, the lowest percentage of all sectors. In the raw materials sector, 76% of the firms conduct transactions in US dollars, but in the services sector, however, only 33% of the firms invoice in US dollars. As with the DM, the services sector has the largest percentage of firms conducting transactions in pound sterling. In addition to construction, the mining industry is the only other sector that does not use the pound for invoicing exports.

Besides construction, the mechanical engineering, electrical and automobile industries sector contains the greatest percentage of firms, nearly 60%, that conduct transactions in the category of other currencies. Mining is the sector with the lowest percentage of firms that invoice in this category.

Table II.2.2. Invoicing practices in Spain (imports)

Currencies / Sectors	Number of responding firms	% of responding firms invoice in:					
		Local currency		DM	US dollar	British pound	Others
		less than 100%	100%				
Basic materials industry	29	31	0	48	55	17	45
Iron, steel and non-ferrous metals industry	20	15	0	50	30	20	55
Mechanical engineering, electrical and automobile industries	41	22	2	46	27	17	51
Processing industry	75	17	11	24	23	9	39
Mining	3	0	0	0	33	0	0
Food, beverages and tobacco industry	22	14	14	18	27	0	27
Total industry	190	19	6	34	30	12	42
Building and construction	2	0	0	0	0	0	0
Services	18	17	0	44	33	22	28
Total	210	19	6	35	30	13	40

In contrast to invoicing practices for exports, the highest percentage of firms in our sample conduct import transactions in the category of other currencies instead of pesetas. In fact, more firms conduct transactions in DM, (35%) and US dollars, (30%) than in pesetas. Only 25% of the sample of firms invoice imports in pesetas, of which a mere 6% corresponds to those that conduct transactions entirely in pesetas. Finally, the British pound is only used by 13% of the firms in the sample.

The building and construction sector which only has two firms reported no import invoicing practices, and the mining sector which has just three firms reported invoicing practices in US dollars only and no other currency. In the raw materials sector, the largest percentage of firms, 55%, conduct transactions in dollars, followed by 45% in other currencies. In sectors two, three, and four the largest percentage of firms invoice in other currencies. In the food, beverages and tobacco sector, 27% of the firms invoice in dollars and another 27% in other currencies. Finally, in the service sector the biggest percentage of firms, 44%, conduct import transactions in marks.

Table II.3. Location of foreign exchange management

Regions	Number of responding firms	Location of foreign exchange management abroad		Head office located in:		
		Yes	No	Europe	USA	Japan
Sectors		% of responding firms				
Basic materials industry	29	14	38	28	3	0
Iron, steel and non ferrous metals industry	20	5	20	20	0	0
Mechanical engineering, electrical and automobile industries	41	10	27	37	0	0
Processing industry	75	0	32	29	0	0
Mining	3	0	67	33	0	0
Food, beverages and tobacco industry	22	0	23	14	0	0
Total industry	190	5	30	28	1	0
Building and construction	2	0	50	0	0	0
Services	18	6	39	39	0	0
Total	210	5	31	29	0	0

Of the 210 responding firms in our sample, only 5% report having foreign exchange management abroad, while 31% state that their foreign management offices are nationally located. The remaining 64% of the firms are those that did not answer this question supposedly because they are 100% Spanish-owned.

With the exception of one firm in our sample which has a head office located in the USA, all head offices located abroad are within Europe. The raw materials sector has the largest percentage, 14%, of firms with foreign exchange management abroad, and the service sector has the largest percentage of companies with head offices located in Europe, 39%. Sector three, mechanical engineering, electrical and automobile industries, has the second largest percentage of firms both in terms of foreign exchange management abroad and in the number of head offices located in Europe.

IV.3. Evaluation of the questionnaires

In this section, the tables will show the answers given by our sample of firms to the different questions on the questionnaire. Each individual question is presented in four different ways so there is a set of four tables for each question.

The first table, 'a', shows all answers in unweighted form and weighted by export and output intensity. Table 'b' for each question shows the answers according to the size of the responding firms. The third table, 'c', represents the extent of foreign trade, and the last table, 'd', is broken down by sector.

It should be noted that since multiple answers are possible for most questions percentages may not add up to 100.

Question III.1

The first question, III.1, asks about the different business strategies used to protect against exchange rate fluctuations. The answers are shown in Tables III.1a to III.1d that follow.

Table III.1a. Business strategies against exchange rate fluctuations in Spain (comparison of weighted and unweighted responses)

	Number of responding firms	Increased domestic market re-orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with a more stable exchange rate *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
All firms unweighted	210	16	35	16	4	44	40	14
Export weighted-rf	210	15	31	16	5	49	51	18
Export weighted-os		14	32	16	2	44	42	14
Weighted with turnover-rf	210	14	42	13	11	50	40	20
Weighted with turnover-os		9	49	15	5	36	31	12

Weighted and unweighted, the top three most important measures that businesses take in order to protect themselves against exchange rate fluctuations are financial hedging measures, followed by in-house measures and re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* the peseta. The least popular measure taken is shifting production facilities abroad; only 4% of the firms surveyed reported this strategy to be important.

Table III.1b. Business strategies against exchange rate fluctuations in Spain (results according to size of company)

Number of employees	Number of partici-pating firms	Increased domestic market re-orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with a more stable exchange rate *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
1-49	95	12	33	15	5	40	36	16
50-199	73	18	38	15	3	44	40	10
200-999	29	24	31	21	0	55	52	14
1,000 and above	8	38	50	25	13	63	38	38

In terms of the size of the company, large firms with 1,000 employees or more report the greatest percentage of firms that consider strategies against exchange fluctuations to be important. The most popular measure used by large firms is financial hedging followed by re-orientation of exports to countries with stable exchange rates *vis-à-vis* the peseta. As for medium-sized firms, small firms, and micro firms, all state financial hedging to be the most important strategy followed by in-house measures. Everyone agrees that moving production facilities abroad is the least important measure against exchange rate fluctuations.

We note that large firms account for the highest percentages for all strategies except in-house measures. This gives an idea of how, for these companies, protecting from exchange rate fluctuations is so important that they make good use of almost every strategy.

Table III.1c. Business strategies against exchange rate fluctuations in Spain (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Increased domestic market orientation	Re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orientation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
Share of exports								
0- 24%	58	19	21	19	3	53	36	14
25-49%	62	18	34	10	2	40	34	15
50-100%	90	13	44	18	6	40	46	13
Total	210	16	35	16	4	44	40	14
Share of imports								
0-24%	176	15	35	14	3	42	40	15
25-49%	15	33	33	27	0	67	40	0
50-100%	19	11	32	26	11	42	37	11
Total	210	16	35	16	4	44	40	14

In terms of foreign trade, firms that have an export share greater than 50% of total output consider in-house measures followed by re-orientation of exports to be the most important strategies against exchange rate fluctuations. Financial hedging is the most important strategy for firms with an export share of less than 50% of turnover and the next important strategy for them is in-house measures. As for import share as a total of output, regardless of share size, all firms consider financial hedging to be the most important measure.

A result which makes sense is that firms with high shares both for exports and for imports are the ones that give less importance to the strategy of increased domestic market orientation and also the ones who make most use of the strategy of shifting production facilities abroad.

Table III.1d. Business strategies against exchange rate fluctuations in Spain (results according to main industry groups)

Main industry groups	Number of respond-ing firms	Increased domestic market orientation	Re-orient-ation of exports to countries with a more stable exchange rate *vis-à-vis* local currency	Re-orient-ation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financia l hedging measures	In-house measures	Other strategies
		Statement that the strategy is important (as a % of total responses)						
Basic materials industry	29	21	28	17	7	59	28	7
Iron, steel and non-ferrous metals industry	20	15	25	20	10	50	35	10
Mechanical engineering, electrical and automobile industries	41	15	22	17	0	49	59	17
Processing industry	75	16	39	16	4	37	36	16
Mining	3	0	67	0	0	33	0	33
Food, beverages and tobacco industry	22	27	41	9	0	45	55	14
Total industry	190	17	33	16	4	45	41	14
Building and construction	2	0	100	0	50	50	50	50
Services	18	6	50	17	0	28	22	6
Total	210	16	35	16	4	44	40	14

In general, the results shown by main industry group maintain the same pattern as outlined above: financial hedging, in-house measures, and re-orientation of exports to countries with a more stable exchange rate are the three most important measures taken by firms to protect themselves against exchange rate fluctuation. Once again, shifting production facilities abroad is the least popular measure. Specifically, those sectors that have the greatest percentage of firms that consider re-orientation of exports to countries with a more stable exchange rate *vis-à-vis* the peseta important are: mining, a sector containing only three firms of which two state the strategy as important, services in which 50% of the firms consider it an important measure, processing (nearly 40%), and building and construction, the sector for which there are only two firms and both consider the strategy important.

On average, construction is the sector that has higher percentages in all strategies, and services is the one with the lower percentages. This can be interpreted such that construction is the sector more strongly concerned with protection against exchange rate fluctuations and services, followed by mining, are the sectors least concerned with these fluctuations.

Question III.2

The next question, III.2, was about which time-period fluctuations most affected the firms' strategies and which currencies were the most important in their decisions.

Table III.2a. Importance of time period of exchange rate fluctuations and importance of different currencies in Spain (comparison of weighted and unweighted responses)

	No. of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day-to-day	month-to-month	quarter-to-quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...Others
		(as a % of total responses)				...are important (as a % of total responses)			
All firms unweighted	210	15	19	12	13	60	23	60	7
Export weighted-rf	210	15	30	19	16	65	29	67	6
Export weighted-os		17	25	15	14	64	27	56	6
Weighted with turnover-rf	210	13	24	15	23	60	24	73	6
Weighted with turnover-os		19	20	4	15	66	18	36	6

According to weighted and unweighted responses, the greatest percentage of firms in our sample consider month-to-month short-term exchange rate fluctuations to be the most important in determining business strategies. About 13% of the responding firms consider long-term exchange rates an important factor that influences business strategy. However, when weighted by the total output of all the firms in our sample, 23% of the firms claim it to be important. Fluctuations of the peseta against other ERM currencies and the US dollar are equally important in terms of prompting business strategies. About 60% of the responding firms state fluctuations against both currencies as important.

Table III.2b. Importance of time period of exchange rate fluctuations and importance of different currencies in Spain (results according to size of company)

Number of employees	No. of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day-to-day	month-to-month	quarter-to-quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...Others
		(as a % of total responses)				...are important (as a % of total responses)			
1-49	95	12	18	9	13	56	13	54	3
50-199	73	16	18	14	11	66	32	58	5
200-999	29	14	28	17	21	69	38	83	21
1,000 and above	8	50	25	0	25	50	13	75	0

Overall, in terms of firm size, the greatest percentage of firms who state that exchange rate fluctuations are important in influencing business strategy are large firms, those of 1,000 employees or more, and medium-sized firms, those with between 200 and 999 employees. Out of the choices for short-term exchange rates, 50% of the large firms rate day to day fluctuations in exchange rates as important, while 25% claim that month to month fluctuations are important. As for the medium-sized firms, 28% of the sample state that month-to-month variations are important, followed by 17% of the firms which report quarterly fluctuations to be important. Results also show that the greatest percentage of firms that consider long-term exchange rates fluctuations to be important are large firms followed by medium-sized firms. Furthermore, large and medium-sized firms have the greatest percentages of companies that claim fluctuations of the peseta against the dollar are important, while small and micro firms report the greatest percentage of firms that claim fluctuations of the peseta against other ERM currencies are important.

Table III.2c. Importance of time period of exchange rate fluctuations and importance of different currencies in Spain (results according to level of foreign trade relations)

Share of foreign trade	No. of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day-to-day	month-to-month	quarter-to-quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...Others
		(as a % of total responses)				...are important (as a % of total responses)			
Share of exports									
0-24%	58	14	16	17	9	50	19	48	7
25-49%	62	15	18	10	16	52	18	60	10
50-100%	90	16	22	11	14	72	29	67	4
Total	210	15	19	12	13	60	23	60	7
Share of imports									
0-24%	176	14	19	11	14	59	24	61	5
25-49%	15	27	7	33	0	87	33	67	13
50-100%	19	16	26	11	21	53	5	42	16
Total	210	15	19	12	13	60	23	60	7

In terms of export share, the percentage of firms that claim short-term fluctuations to be important is pretty even among the the three groups of export shares, whether they export more or less than 50% of their total output. However, as the share of exports as a percentage of total output becomes greater, fluctations of the peseta against other currencies becomes of more importance for the firms in our sample. More than 70% of the firms which have an export share greater than 50% state that fluctuations of the peseta against other ERM currencies is important in determining business strategies, and 67% claim the US dollar to be important. Fluctuations against currencies of EU countries outside of the ERM are only important to 29% of the firms with export shares over 50%, and fluctuations against other currencies is the least important of the four categories. As for import share, only 16% of the firms in our sample have an import share of total output above 25%. Like the case for export shares, as the import share becomes greater, exchange rate fluctuations become more important. However, those firms with import shares between 25 and 49% report the greatest percentage of firms that consider daily and quarterly fluctuations important. As for fluctuations of the peseta against other currencies, the same trend appears for imports as with exports: movements against other ERM currencies and the US dollar are important. In fact, almost 90% of the firms with an import share between 25 and 49% rate fluctuations of the

peseta against ERM currencies as important, followed by 67% of firms which state the US dollar to be important.

Table III.2d. Importance of time period of exchange rate fluctuations and importance of different currencies in Spain (results according to main industry groups)

Main industry groups	No. of responding firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day-to-day	month-to-month	quarter-to-quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...Others
		(as a % of total responses)				...are important (as a % of total responses)			
Basic materials industry	29	10	34	24	21	66	28	76	10
Iron, steel and non ferrous metals industry	20	20	5	15	15	55	20	65	15
Mechanical engineering, electrical and automobile industries	41	17	37	22	12	68	34	63	5
Processing industry	75	8	9	9	12	55	19	59	4
Mining	3	33	0	0	33	33	33	67	0
Foods, beverages and tobacco industry	22	27	14	0	5	55	18	64	9
Total industry	190	14	19	14	13	59	24	64	7
Building and construction	2	0	0	0	50	50	0	100	0
Services	18	22	22	0	11	72	17	11	6
Total	210	15	19	12	13	60	23	60	7

According to the eight main industry groups, the answers deviate quite a lot from the overall figures. Thirty-seven per cent of the firms in the mechanical engineering, electrical and automobile industry sector point out that month-to-month fluctuations are important and 34% in the raw materials sector say it is important. The greatest number of firms stating day-to-day movements as important is in the mining sector, at 33%, but it only has a sample of three firms. Thus, the food, beverages, and tobacco industry, a sector with a larger sample of firms, has the second largest percentage of firms, 27%, that claim daily fluctuations to be important. As for movements of the peseta against other currencies, all but two sectors have the greatest percentage of firms claiming fluctuations against the US dollar to be important closely followed by movements against ERM currencies. The latter currencies are the most

important for the services sector as well as the mechanical engineering, electrical and automobile industry.

Question IV.1

Question IV.1 was about what percentage of the firms' liabilities in the different currencies were hedged in recent years. This is a question which firms frequently did not understand. Maybe the question was not formulated clearly enough, or maybe the idea was not easy to understand, but the result is that the rate of no-answers is the highest of all questions. Since we cannot distinguish between 'no answer' and 0%, both possibilities are included in the columns headed with 'to 33%' which always have the greatest percentages.

Table IV.1a. Volume of financial hedging of foreign exchange denominated assets/ liabilities in Spain (comparison of weighted and unweighted responses)

	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)								
All firms unweighted	210	85	9	6	94	3	3	88	6	6
Export weighted-rf	210	88	7	5	91	7	3	85	10	5
Export weighted-os	210	84	10	6	93	5	2	87	7	6
Weighted with turnover-rf	210	88	7	5	94	3	3	88	6	6
Weighted with turnover-os	210	79	16	6	98	1	1	93	2	5

Table IV.1b. Volume of financial hedging of foreign exchange denominated assets/liabilities in Spain (results according to size of company)

Number of employees	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)								
1-49	95	88	7	4	98	0	2	92	3	5
50-199	73	86	10	4	92	7	1	88	7	5
200-999	29	69	14	17	86	3	10	79	14	7
1,000 and above	8	75	13	13	100	0	0	75	13	13

Table IV.1c. Volume of financial hedging of foreign exchange denominated assets/liabilities in Spain (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)								
Share of exports										
0-24%	58	81	10	9	97	3	0	88	5	7
25-49%	62	82	6	11	89	3	8	85	8	6
50-100%	90	89	10	1	97	2	1	90	6	4
Total	210	85	9	6	94	3	3	88	6	6
Share of imports										
0-24%	176	87	8	5	93	3	3	88	7	5
25-49%	15	60	13	27	100	0	0	87	0	13
50-100%	19	84	16	0	100	0	0	89	5	5
Total	210	85	9	6	94	3	3	88	6	6

Table IV.1d. Volume of financial hedging of foreign exchange denominated assets/liabilities in Spain (results according to main industry groups)

Main industry groups	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)								
Basic materials industry	29	83	10	7	93	0	7	83	7	10
Iron, steel and non-ferrous metals industry	20	75	15	10	95	5	0	85	5	10
Mechanical engineering, electrical and automobile industries	41	88	7	5	88	10	2	83	12	5
Processing industry	75	88	8	4	96	1	3	89	7	4
Mining	3	100	0	0	100	0	0	100	0	0
Food, beverages and tobacco industry	22	86	0	14	95	0	5	95	0	5
Total industry	190	86	8	6	94	3	3	87	7	6
Building and construction	2	100	0	0	100	0	0	100	0	0
Services	18	72	22	6	100	0	0	94	0	6
Total	210	85	9	6	94	3	3	88	6	6

Results show that our sample of firms practice very little hedging; the majority hedges less than 33% of its foreign currency assets and/or liabilities. Furthermore, the percentage of firms that hedge less than 33% of their assets/liabilities differs very little in relation to the currency the assets or liabilities are being hedged against. The size of the firms does not appear to have a great impact on hedging practices either. In general, the small and micro firms appear to use hedging practices against ERM currencies and non-EU currencies slightly more than medium-sized and large firms. Moreover, the size of import or export share seems to have very little weight in determining hedging practices. It appears that a slightly greater percentage of firms report hedging practices as important in our sample of firms for which export shares comprise over half of total output.

No striking trends are revealed when looking at hedging practices by sector. The services sector and the food, beverages and tobacco sector stand out because they hedge more of their assets and liabilities against ERM currencies than any of the other sectors. The mechanical, electrical and automobile industry leads the other sectors in hedging against EU non-ERM currencies as well as non-EU currencies. Finally, the raw materials sector, and the iron, steel and non-ferrous metals sector stand out in terms of hedging against non-EU currencies.

Question IV.2

Question IV.2 dealt with how firms hedge their exchange rate risks. Percentages had to be estimated for the different choices of financial strategies. Here again, we had a low rate of response which meant either no answer or zero percentage. We gained this information through conversations with several firms. Therefore, both possibilities are included in the 'to 33%' columns which have very high figures.

Table IV.2a. Kinds of financial hedging against exchange rate fluctuations in Spain (comparison of weighted and unweighted responses)

	No. of respond-ing firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)														
All firms unweighted	210	91	5	4	90	4		97	1	2	69	6	25	95	2	3
Export weighted-rf	210	93	3	4	96	1	3	99	1	1	61	6	33	99	0	1
Export weighted-os	210	93	4	4	92	2	6	97	1	2	63	7	31	96	2	2
Weighted with turnover-rf	210	94	4	2	92	2	6	97	1	2	66	4	30	99	0	1
Weighted with turnover-os	210	97	2	2	96	1	2	96	0	4	67	8	25	89	7	4

Table IV.2b. Kinds of financial hedging against exchange rate fluctuations in Spain (results according to size of company)

Number of employees	Number of respond-ing firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)														
1-49	95	91	5	4	92	3	5	94	2	4	78	9	13	97	2	1
50-199	73	93	3	4	86	5	8	99	0	1	68	4	27	92	3	5
200-999	29	93	7	0	90	3	7	100	0	0	45	3	52	97	0	3
1,000 and above	8	88	0	13	100	0	0	100	0	0	38	0	63	100	0	0

Table IV.2c. Kinds of financial hedging against exchange rate fluctuations in Spain (results according to level of foreign trade relations)

Share of foreign trade	Num-ber of respond-ing firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)														
Share of exports																
0-24%	58	91	9	0	91	5	3	100	0	0	57	5	38	97	0	3
25-49%	62	95	2	3	92	2	6	90	2	8	77	2	21	97	0	3
50-100%	90	89	4	7	88	4	8	99	1	0	71	10	19	93	4	2
Total	210	91	5	4	90	4	6	97	1	2	69	6	25	95	2	3
Share of imports																
0-24%	176	94	3	3	89	4	7	96	1	3	73	7	20	95	2	3
25-49%	15	67	27	7	93	7	0	100	0	0	40	7	53	93	0	7
50-100%	19	89	0	11	95	0	5	100	0	0	53	0	47	100	0	0
Total	210	91	5	4	90	4	6	97	1	2	69	6	25	95	2	3

Table IV.2d. Kinds of financial hedging against exchange rate fluctuations in Spain (results according to main industry groups)

Main industry groups	No. of resp. firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		(as a % of total responses)														
Basic materials industry	29	93	7	0	93	3	3	93	3	3	52	3	45	100	0	0
Iron, steel and non-ferrous metals industry	20	80	10	10	65	10	25	95	0	5	70	5	25	95	0	5
Mechanical engineering, electrical and automobile industries	41	93	2	5	98	0	2	100	0	0	56	7	37	100	0	0
Processing industry	75	92	5	3	91	5	4	96	1	3	79	7	15	93	3	4
Mining	3	100	0	0	67	0	33	100	0	0	67	0	33	100	0	0
Food, beverages and tobacco industry	22	86	5	9	86	5	9	100	0	0	86	5	9	95	0	5
Total industry	190	91	5	4	89	4	7	97	1	2	69	6	25	96	1	3
Building and construction	2	100	0	0	100	0	0	100	0	0	100	0	0	100	0	0
Services	18	100	0	0	100	0	0	94	0	6	61	11	28	83	11	6
Total	210	91	5	4	90	4	6	97	1	2	69	6	25	95	2	3

Of the various types of hedging methods against exchange rate fluctuations, the most popular method among our sample is exchange rate insurance, followed by discounting of foreign exchange bills, and forward exchange transactions. About 25% of our sample firms hedge two-thirds or more of their currency transactions with exchange rate insurance. Those firms that use this hedging practice include 63% of large firms, 52% of medium-sized firms, 27% of small firms, and 13% of micro firms. Thus the larger the firm, the greater is the usage of exchange rate insurance as a hedging measure. In terms of foreign trade, export and import shares do not appear to have a key role in determining hedging practices amongst the firms in our sample.

As noted earlier, the most popular hedging practice among our sample of firms is exchange rate insurance. The sectors with the greatest percentage of firms that hedge two-thirds or more of their currency transactions using this method are raw materials and mechanical engineering, electrical and automobile industries. In addition, 39% of the firms in the services sector hedge one-third or more of their currency transactions in this manner. As for other hedging

measures, in the iron, steel and non-ferrous metals sector, 35% of the firms use discounting of foreign exchange bills and 20% use forward exchange transactions to hedge more than one-third of currency transactions. In the mining industry, 33% of the firms use discounting of foreign exchange bills to hedge more than two-thirds of their operations.

Question IV.3

In this question firms had to name which of the several reasons had an important influence on their choices of different forms of financial hedging.

Table IV.3a. Reasons for different forms of financial hedging in Spain (comparison of weighted and unweighted responses)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
All firms unweighted	210	33	25	15	17	3
Export weighted-rf	210	32	17	17	20	4
Export weighted-os	210	32	22	17	19	4
Weighted with turnover-rf	210	37	24	17	15	3
Weighted with turnover-os	210	39	19	18	18	4

Table IV.3b. Reasons for different forms of financial hedging in Spain (results according to size of company)

Number of employees	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important - as a % of total responses -				
1-49	95	22	22	14	9	2
50-199	73	40	26	12	21	1
200-999	29	48	38	14	31	7
1,000 and above	8	50	13	63	25	13

Table IV.3c. Reasons for different forms of financial hedging in Spain (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
Share of exports						
0-24%	58	36	29	17	16	3
25-49%	62	18	23	16	8	2
50-100%	90	41	24	13	23	3
Total	210	33	25	15	17	3
Share of imports						
0-24%	176	32	22	14	16	3
25-49%	15	40	47	33	20	0
50-100%	19	37	37	11	16	5
Total	210	33	25	15	17	3

Table IV.3d. Reasons for different forms of financial hedging in Spain (results according to level of foreign trade relations)

Main industry groups	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important (as a % of total responses)				
Basic materials industry	29	48	41	31	17	3
Iron, steel and non-ferrous metals industry	20	45	45	5	10	5
Mechanical engineering, electrical and automobile industries	41	27	12	17	24	5
Processing industry	75	25	23	12	15	1
Mining	3	0	33	0	0	0
Food, beverages and tobacco industry	22	36	27	9	14	0
Total industry	190	32	26	15	16	3
Building and construction	2	50	0	0	0	0
Services	18	39	17	22	22	6
Total	210	33	25	15	17	3

The greatest percentage of firms claim cost to be the biggest reason for financial hedging, accounting for 33% of the companies surveyed. The second major reason for hedging is the payment period of accounts in foreign currencies; 25% of the sample firms state this reason as important. Only 3% of the sample firms have reasons for hedging other than those listed. Large, medium-sized, and small firms place greater importance on cost as a reason for hedging than do micro firms. Thus, our sample shows that the larger the firm, the greater role cost plays as a reason for hedging. The greatest percentage of firms that consider payment period of accounts in foreign currencies and flexibility of instrument to be important reasons for hedging fall into the area of medium-sized firms, while a significantly large percentage of firms that claim technical handling to be important lie in the category of large firms.

Finally, as analysed by sector, the greatest percentage of firms in all but one sector select cost as an important reason for financial hedging. For the mining sector the only important reason for hedging is the payment period of accounts in foreign currencies. The raw materials sector and the food, beverages and tobacco industry lend significant importance to other reasons besides cost, such as payment period and technical handling.

Question IV.4

In question IV.4 a list of other potential measures for protecting against exchange rate fluctuations was given, and firms selected those which were important in their case.

Table IV.4a. Other measures (business-internal measures) against exchange rate risks in Spain (comparison of weighted and unweighted responses)

	Number of respond-ing firms	Netting of foreign currency assets and liabilities	Chang-ing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another international currency	Increasing staff involved in risk management	Others
		(answering 'yes' as a % of total responses)							
All firms unweighted	210	19	15	25	38	1	14	36	1
Export weighted-rf	210	25	26	32	40	1	14	44	1
Export weighted-os		22	19	26	34	1	13	36	1
Weighted with turnover-rf	210	30	26	29	33	2	19	41	1
Weighted with turnover-os		28	22	23	27	0	19	23	0

Table IV.4b. Other measures (business-internal measures) against exchange rate risks in Spain (results according to size of company)

Number of employees	Number of responding firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another international currency	Increasing staff involved in risk management	Others
		(answering 'yes' as a % of total responses)							
1-49	95	11	15	17	38	1	15	25	1
50-199	73	15	14	32	36	0	12	38	0
200-999	29	45	14	41	45	3	17	66	3
1,000 and above	8	63	50	25	38	0	25	50	0

Table IV.4c. Other measures (business-internal measures) against exchange rate risks in Spain (results according to level of foreign trade relations)

Share of foreign trade	Number of responding firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another intern. currency	Increasing staff involved in risk management	Others
		(answering 'yes' as a % of total responses)							
Share of exports									
0-24%	58	17	17	34	38	2	9	34	0
25-49%	62	18	11	19	42	2	13	34	0
50-100%	90	21	17	23	34	0	19	39	2
Total	210	19	15	25	38	1	14	36	1
Share of imports									
0-24%	176	16	13	25	39	1	14	35	1
25-49%	15	40	20	33	33	0	13	60	0
50-100%	19	26	37	21	26	5	16	32	0
Total	210	19	15	25	38	1	14	36	1

Table IV.4d. Other measures (business-internal measures) against exchange rate risks in Spain (results according to main industry groups)

Main industry groups	Number of respon-ding firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another intern. currency	Increasing staff involved in risk management	Others
		(answering 'yes' as a % of total responses)							
Basic materials industry	29	38	28	21	17	7	17	45	3
Iron, steel and non-ferrous metals industry	20	25	0	30	25	0	20	30	0
Mechanical engineering, electrical and automobile industries	41	22	27	34	44	0	10	46	0
Processing industry	75	7	11	23	45	0	15	37	1
Mining	3	0	0	0	0	0	0	0	0
Food, beverages and tobacco industry	22	18	0	27	59	0	9	32	0
Total industry	190	18	14	26	39	1	14	38	1
Building and construction	2	50	50	50	50	0	50	50	0
Services	18	28	22	17	17	0	17	11	0
Total	210	19	15	25	38	1	14	36	1

The two most popular measures against exchange rate risks in this category chosen by our sample of firms are increased invoicing in local currency (pesetas) and increasing staff involved in risk management. Pricing policy appears to be a significant method as well. The least popular method is increased invoicing in ECU.

In firms of 50 people or more, increasing staff involved in risk management is the most popular measure against exchange rate risks. Larger firms in our sample tend to use a wider range of measures, while smaller firms prefer increased invoicing in local currency. Among the responses to increasing staff involved in risk management, the bigger the size of the company, the higher the percentage of firms claiming to use this strategy. The same occurs with the netting of foreign currency assets and liabilities.

In terms of trade, the size of export or import share appears to have little influence on selecting exchange rate risk measures. However, we find that the firms with the higher share of exports are the ones to make more use of increased invoicing in another international currency and increasing staff involved in risk management. On the other hand, the ones with the smallest share in exports are those that make more use of pricing policies.

As broken down by sector, there are some interesting characteristics to point out. For example, in the services sector the most popular strategy is to use netting of foreign currency assets and liabilities as a measure against risk. The same occurs in the raw materials sector. Only firms of the raw materials sector use increased invoicing in ECU as a method, and it is also interesting to note that none of the firms in the mining sector use any of the techniques listed.

As has already been pointed out, the most popular strategies were to increase invoicing in local currency and to increase staff involved in risk management, and in the former, the food sector is the one with the highest percentage of firms using it while mining and services are the ones with the lowest percentages.

On average, construction and the mechanical engineering industries are the sectors with highest percentages for all measures, i.e. they are the sectors which make the most use of all measures in general. On the other hand, mining and services are the ones with the lowest average, so they use the named measures the least.

Question V.1

Question V.1 was about bank commissions and other processing fees. It asked how much they amount to and how have they behaved since the late 1980s.

Table V.1a. Banks' commissions and other processing fees for the exchange of currencies in Spain (comparison of weighted and unweighted responses)

	No. of responding firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	- answering 'yes' as a % of total responses -	... not changed	...incr.	...decr.
		(as a % of total responses)						(as a % of total responses)		
All firms unweighted	210	35	33	17	4	0	52	18	14	50
Export weighted-rf	210	37	33	15	4	0	49	13	19	53
Export weighted-os		36	33	15	5	0	53	18	18	52
Weighted with turnover-rf	210	37	31	14	2	0	48	14	13	55
Weighted with turnover-os		29	34	15	8	0	60	22	18	47

Table V.1b. Banks' commissions and other processing fees for the exchange of currencies in Spain (results according to size of company)

Number of employees	No. of responding firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	- answering 'yes' as a % of total responses -	... not changed	...incr.	...decr.
		(as a % of total responses)						(as a % of total responses)		
1-49	95	27	33	22	6	0	56	16	16	48
50-199	73	29	38	15	3	1	56	25	12	45
200-999	29	66	28	7	0	0	45	14	14	69
1,000 and above	8	63	25	0	0	0	13	13	0	75

Table V.1c. Banks' commissions and other processing fees for the exchange of currencies in Spain (results according to level of foreign trade relations)

Share of foreign trade	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	- answering 'yes' as a % of total responses -	... not changed	...incr.	...decr.
		(as a % of total responses)						(as a % of total responses)		
Share of exports										
0-24%	58	34	36	21	2	0	47	19	14	50
25-49%	62	32	32	11	6	2	58	11	16	53
50-100%	90	37	32	18	3	0	52	22	12	49
Total	210	35	33	17	4	0	52	18	14	50
Share of imports										
0-24%	176	32	34	16	5	1	55	18	12	51
25-49%	15	47	33	20	0	0	40	27	20	53
50-100%	19	47	26	16	0	0	37	11	26	47
Total	210	35	33	17	4	0	52	18	14	50

Table V.1d. Banks' commissions and other processing fees for the exchange of currencies in Spain (results according to main industry groups)

Main industry groups	No. of responding firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	- answering 'yes' as a % of total responses -	not changed	incr.	decr.
		(as a % of total responses)						(as a % of total responses)		
Basic materials industry	29	55	17	21	0	0	41	14	14	59
Iron, steel and non-ferrous metals industry	20	25	45	10	10	5	55	25	20	45
Mechanical engineering, electrical and automobile industries	41	39	34	15	5	0	49	12	24	54
Processing industry	75	27	37	17	3	0	55	16	8	48
Mining	3	33	33	0	0	0	67	33	0	67
Food, beverages and tobacco industry	22	45	27	23	0	0	50	27	5	50
Total industry	190	36	33	17	3	1	51	17	13	51
Building and construction	2	0	50	0	0	0	50	0	0	50
Services	18	28	33	17	11	0	67	28	22	44
Total	210	35	33	17	4	0	52	18	14	50

Weighted and unweighted, more than half of the responding firms claim that banks' commissions and other processing fees amount to less than 1%. Furthermore, about half the firms agree that these costs are less expensive for intra-EU transactions and that overall, costs have decreased since the late 1980s.

Overall, smaller firms report costs to be higher than the costs claimed by larger firms. Of the large and medium-sized firms in our sample, more than 60% state that banks' commissions and other processing fees amount to less than 0.5%, and the majority of the rest of the firms claim that fees are somewhere between 0.5 and 1%. On the other hand, according to the small and micro firms in our sample, the greatest percentage of firms claim that fees amount to between 0.5% and 1%, and more than a fourth of these firms report fees at less than 0.5%. However, a good number of firms also claim costs to lie between 1 and 2%. More than 50% of small and micro firms report costs are less expensive for intra-EU transactions, while 45% of medium-sized firms and only 13% of large firms claim less expensive transactions within the EU.

Nearly 70% of medium-sized firms and 75% of large firms state that these costs have decreased since the late 1980s, while a smaller percentage of small firms (45%) and micro

firms (48%) agree that costs have decreased. In general, we see that the larger the firm size, the more firms claim these costs have decreased and the less they differentiate between intra-EU transactions and the rest. That is, the decrease has equally affected all transactions for bigger companies.

One-quarter of the small firms and 16% of the micro firms claim that costs have not changed, and 12% and 16%, respectively, state that costs have actually increased since the late 1980s. As for the large firms in our sample, 13% state that costs have not changed and none report an increase. Finally, 14% of medium-sized firms state that costs have not changed, and another 14% claim they have increased.

Broken down by import and export share, as well as by sector, nothing new is revealed. The overall trend is maintained as outlined above.

Question V.2

Question V.2 is concerned with whether firms devote specific staff to administering foreign currency transactions or not, and if they do, how much do the corresponding costs amount to and how have they behaved since the end of the 1980s.

Table V.2a. Costs for personnel and equipment for administering foreign currency transactions in Spain (comparison of weighted and unweighted responses)

	No. of responding firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firm's foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	incr.	decr.
			(as a % of total responses)					(as a % of total responses)		
All firms unweighted	210	28	48	8	5	3	1	32	22	11
Export weighted-rf	210	33	54	8	9	4	1	33	27	20
Export weighted-os	210	28	53	9	5	3	1	34	23	14
Weighted with turnover-rf	210	37	45	8	11	2	1	26	26	22
Weighted with turnover-os	210	18	48	6	6	1	0	27	24	15

Table V.2b. Costs for personnel and equipment for administering foreign currency transactions in Spain (results according to size of company)

Number of employees	No. of respond-ing firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firm's foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
			- as a % of total responses -					- as a % of total responses -		
1-49	95	24	41	4	6	6	1	31	17	11
50-199	73	21	51	8	1	1	1	36	27	7
200-999	29	55	66	17	7	0	0	34	31	21
1,000 and above	8	63	63	0	13	0	13	38	25	25

Table V.2c. Costs for personnel and equipment for administering foreign currency transactions in Spain (results according to level of foreign trade relations)

Share of foreign trade	No. of responding firms	There is specific staff for administering foreign currency transactions (answering 'yes' as a % of total responses)	Annual costs for staff and equipment (as a % of firm's foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
			(as a % of total responses)					(as a % of total responses)		
Share of exports										
0-24%	58	26	52	7	3	0	2	34	16	12
25-49%	62	32	47	5	3	8	2	31	27	8
50-100%	90	27	47	10	7	2	1	32	23	12
Total	210	28	48	8	5	3	1	32	22	11
Share of imports										
0-24%	176	26	48	7	5	3	1	33	21	11
25-49%	15	47	47	7	0	0	7	27	33	0
50-100%	19	37	53	11	5	5	0	32	26	21
Total	210	28	48	8	5	3	1	32	22	11

Table V.2d. Costs for personnel and equipment for administering foreign currency transactions in Spain (results according to main industry groups)

Main industry groups	No. of responding firms	There is specific staff for administering foreign currency transactions - answering 'yes' as a % of total responses -	Annual costs for staff and equipment (as a % of firm's foreign trade) - as a % of total responses -					Since the late 1980s these costs have... - as a % of total responses -		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...incr.	...decr.
Basic materials industry	29	41	59	3	0	0	3	24	21	14
Iron, steel and non-ferrous metals industry	20	35	30	15	10	5	0	35	25	5
Mechanical engineering, electrical and automobile industries	41	32	61	10	7	5	0	39	27	20
Processing industry	75	25	45	4	5	5	3	33	23	5
Mining	3	33	33	33	0	0	0	33	0	33
Food, beverages and tobacco industry	22	23	36	14	0	0	0	32	14	9
Total industry	190	30	48	8	5	4	2	33	22	11
Building and construction	2	50	0	0	50	0	0	0	50	50
Services	18	6	56	6	0	0	0	28	22	11
Total	210	28	48	8	5	3	1	32	22	11

Less than one-third of the responding firms in our sample have a specific staff for administering foreign currency transactions, and about half of the firms claim that annual costs for staff and equipment account for less than 0.5% of their foreign trade. However, about 30% report that since the late 1980s, these costs have not changed, and about 20% report that costs have increased, while only about 10% report costs to have decreased. When weighted by the exports and output of the responding firms, the percentages for decreased costs since the late 1980s become greater. This means that the firms reporting decreased costs are the ones with bigger volumes of both export and turnover.

When broken down by firm size, more than half of the large and medium-sized firms have a specific staff for administering foreign currency transactions, while only 21% of the small

firms and 24% of the micro firms have staff dedicated to such operations. Of the large and medium-sized firms, more than 60% agree that annual costs for staff and equipment account for less than 0.5% of their foreign trade, while 51% and 41%, respectively, of the small and micro firms claim that costs lie in the same range. Regardless of firm size, the greatest percentage of firms report that since the late 1980s these costs have not changed. However, more large and medium-sized firms than small and micro firms claim costs have decreased since the late 1980s.

In terms of share of foreign trade, there are more firms with a share of exports or imports greater than 25% of their total output that have staff devoted to administering foreign currency transactions than firms with a share of exports or imports below 25% of total output.

Broken down by sector, it is interesting to note that in the services industry, only 6% of the firms have a specific staff devoted to administering foreign currency transactions.

Question V.3

In question V.3 the firms were asked about hedging costs: what percentage of foreign trade do these costs amount to annually, and how have they evolved since the late 1980s.

Table V.3a. Hedging costs in Spain (comparison of weighted and unweighted responses)

	No. of respond-ing firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...increased	...decreased
		(as a % of total responses)					(as a % of total responses)		
All firms unweighted	210	51	12	8	3	0	37	13	20
Export weighted-rf	210	53	16	5	2	0	41	17	19
Export weighted-os	210	49	16	6	3	0	38	16	20
Weighted with turnover-rf	210	56	9	4	2	0	33	13	22
Weighted with turnover-os	210	35	20	6	4	0	32	15	20

Table V.3b. Hedging costs in Spain (results according to size of company)

Number of employees	No. of responding firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...increased	...decreased
		(as a % of total responses)					(as a % of total responses)		
1-49	95	44	13	9	2	0	37	11	19
50-199	73	48	11	7	5	0	40	18	11
200-999	29	69	17	7	0	0	31	14	41
1,000 and above	8	88	0	0	0	0	38	13	38

Table V.3c. Hedging costs in Spain (results according to level of foreign trade relations)

Share of foreign trade	No. of responding firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...increased	...decreased
		- as a % of total responses -					- as a % of total responses -		
Share of exports									
0-24%	58	43	16	17	2	0	31	12	28
25-49%	62	50	6	3	5	0	35	15	15
50-100%	90	57	13	4	2	0	41	13	18
Total	210	51	12	8	3	0	37	13	20
Share of imports									
0-24%	176	52	11	7	2	0	37	13	19
25-49%	15	47	13	20	13	0	33	20	27
50-100%	19	47	16	5	0	0	37	16	21
Total	210	51	12	8	3	0	37	13	20

Annual hedging costs for the majority of firms, weighted and unweighted, amount to less than 0.5% of its foreign trade. These costs never amount to more than 4% of the firms' foreign trade.

With regards to changes in hedging costs since the late 1980s, weighted and unweighted, most firms agree that these costs have not changed or that they have decreased.

In terms of the size of the company, it can be said that the importance of hedging costs in the total amount of foreign trade decreases proportionally as the size of the company increases. All large firms of our sample, with 1,000 employees or more, have annual hedging costs lower than 0.5% of foreign trade.

Table V.3d. Hedging costs in Spain (results according to main industry groups)

Main industry groups	No. of respond-ing firms	Annual costs for hedging various currencies (as a % of firm's foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...increased	...de-creased
		(as a % of total responses)					(as a % of total responses)		
Basic materials	29	66	3	3	3	0	10	17	38
Iron, steel and non-ferrous metals industry	20	65	0	10	0	0	40	15	15
Mechanical engineering, electrical and automobile industries	41	51	22	5	2	0	46	20	17
Processing industry	75	51	9	11	3	0	44	8	15
Mining	3	67	0	0	0	0	33	0	33
Food, beverages and tobacco industry	22	41	14	9	5	0	32	14	18
Total industry	190	54	11	8	3	0	37	13	19
Building and construction	2	50	0	0	0	0	50	0	0
Services	18	22	28	6	6	0	28	17	22
Total	210	51	12	8	3	0	37	13	20

With regard to hedging costs development since the late 1980s, firms with 1 to 199 employees think these costs have not changed, medium-sized firms of 200 to 999 employees say that these costs have decreased, and 38% of large firms with 1,000 employees or more claim costs have not changed and the same percentage of large firms state costs have declined.

When broken down by export and import share, the results reflect the overall trends. The only interesting point that appears is the different results shown by firms with an import share between 25 and 49%. In this group there are a few firms with high hedging costs: 20% of the firms have annual hedging costs between 1 and 2%, and 13% of the firms have annual hedging costs between 2 and 4%. With regards to changes in hedging costs since the late 1980s, the majority of firms say that these costs have not changed, without discrimination by groups of import share.

The results shown by main industry groups state that in all sectors except in services, hedging costs, in most cases, amount to less than 0.5% of firms foreign trade. In the services sector these costs are higher: there are approximately the same number of firms with hedging costs under 0.5% as there are firms with costs up to 1%.

The basic materials sector is that for which most firms state these costs to be lowest and to have decreased. On the other hand, in the services sector and the mechanical engineering industries these costs amount to high percentages of foreign trade. Moreover, the latter is the sector with the highest percentage of firms claiming that these costs have increased.

Question V.4

This question deals with the time periods for bank transactions and their evolution since the late 1980s. It tries to determine whether there are any differences between transactions done in EU currencies and transactions performed in non-EUcurrencies.

Table V.4a. Costs induced by prolonged time period for money transfers in Spain (comparison of weighted and unweighted responses)

	No. of respon-ding firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s, for EU currencies, these costs have...			Since the late 1980s, for non-EU currencies, these costs have...		
				...not changed	...incr.	...decr.	...not changed	...incr.	...decr.
				(as a % of total responses)			(as a % of total responses)		
All firms unweighted	210	2	3	20	2	53	23	2	41
Export weighted-rf	210	2	3	25	2	63	30	2	49
Export weighted-os		2	3	22	2	58	25	3	43
Weighted with turnover-rf	210	3	4	25	1	57	28	1	47
Weighted with turnover-os		2	3	28	4	51	23	4	37

Table V.4b. Costs induced by prolonged time period for money transfers in Spain (results according to size of company)

Number of employees	No. of respon-ding firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s, for EU currencies, these costs have...			Since the late 1980s, for non-EU currencies, these costs have...		
				...not changed	...incr.	...decr.	...not changed	...incr.	...decr.
				(as a % of total responses)			(as a % of total responses)		
1-49	95	3	3	19	3	47	19	3	34
50-199	73	3	3	26	1	49	34	3	33
200-999	29	2	3	14	0	79	10	0	79
1,000 and above	8	2	3	13	0	88	13	0	88

Table V.4c. Costs induced by prolonged time period for money transfers in Spain (results according to level of foreign trade relations)

	No. of responding firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s, for EU currencies, these costs have...			Since the late 1980s, for non-EU currencies, these costs have...		
				...not changed	...incr.	...decr.	...not changed	...incr.	...decr.
				(as a % of total responses)			(as a % of total responses)		
Share of exports									
0-24%	58	2	2	26	2	48	26	0	40
25-49%	62	3	4	18	3	50	18	6	39
50-100%	90	2	3	18	1	59	24	1	43
Total	210	2	3	20	2	53	23	2	41
Share of imports									
0-24%	176	2	3	19	2	53	23	3	41
25-49%	15	2	3	33	0	53	27	0	33
50-100%	19	3	2	16	0	58	21	0	47
Total	210	2	3	20	2	53	23	2	41

The average additional time period for bank transfers in which a non-EU currency is involved compared with bank transfers in which an EU currency is involved is one day, for all the firms in our sample, unweighted as well as weighted by exports and output.

Weighted and unweighted, most firms state that the costs induced by a prolonged time period for money transfers in Spain have decreased since the late 1980s for both EU and non-EU currencies.

In terms of the size of the company, micro firms and small firms show there is no difference in the average additional time period between bank transfers with non-EU currencies and bank transfers with EU currencies. But firms with more than 200 employees report the same difference outlined above: one more day for bank transfers in which a non-EU currency is involved compared with those in which an EU currency is involved.

With regard to costs, since the late 1980s, firms with more than 200 employees do not distinguish a difference between bank transfers with non-EU currencies and those with EU currencies: for the majority of them these costs have decreased. For companies that have less than 200 employees, the number of firms for which these costs have decreased is greater in the case of EU currencies than in the case of non-EU currencies. When broken down in terms of foreign trade, the overall trends are maintained. However, those firms with an export share

less than 24% of total output state that the additional time period for bank transfers conducted in EU and non-EU currencies is the same.

Table V.4d. Costs induced by prolonged time period for money transfers in Spain (results according to main industry groups)

	No. of respond-ing firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s, for EU currencies, these costs have...			Since the late 1980s, for non-EU currencies, these costs have...		
				...not changed	...incr.	...decr.	...not changed	...incr	...decr.
				(as a % of total responses)			(as a % of total responses)		
Basic materials industry	29	3	3	17	0	55	14	0	52
Iron, steel and non-ferrous metals industry	20	3	5	35	0	40	35	5	20
Mechanical engineering, electrical and automobile industries	41	2	3	24	2	68	32	2	51
Processing industry	75	2	3	9	1	53	15	3	41
Mining	3	2	7	0	0	67	33	0	33
Food, beverages and tobacco industry	22	2	2	32	5	36	36	0	32
Total industry	190	2	3	19	2	54	23	2	42
Building and construction	2	3	6	50	0	50	50	0	50
Services	18	2	2	28	6	50	17	6	33
Total	210	2	3	20	2	53	23	2	41

In terms of import share, firms whose share is between 50 and 100% state that the average additional time period is less for bank transfers in which a non-EU currency is involved than for one in which an EU currency is involved.

In terms of the main industry groups, the mining sector claims the longest time period: seven extra days for bank transfers in which a non-EU currency is involved.

In the following sectors, basic materials; food, beverages and tobacco and services, additional days for bank transfers are the same for non-EU currencies as for EU currencies.

In mechanical engineering, electrical and automobile industries the highest percentage of firms claiming that costs induced by a prolonged time period for money transfers have decreased

since the late 1980s. The percentage of firms that say this for EU transfers is higher than for non-EU transfers.

Iron, steel and non-ferrous metals, and food, beverages and tobacco are the sectors that get the lowest percentages of firms stating that these costs have decreased while at the same time they have high percentages of those that say costs have not changed.

IV.4. Evaluation of company interviews

Company A

Characteristics of the company:
Total turnover: PTA 4,405 million
Total exports: PTA 1,505 million
Total imports: PTA 1,200 million
Number of employees: 204

Company A is the Spanish branch of a French company dedicated to the manufacturing of pharmaceuticals. All the exports of the Spanish branch go to France, and 90% of their imports come from the EU (5% from Germany, 84% from France and 1% from Ireland), the remaining 10% come from the USA.

Being a branch of a multinational company, they are constrained by general policies determined by their head office abroad. In particular, the company's policy regarding foreign exchange is not to protect at all. They let the foreign exchange markets operate naturally and compensate losses in some operations with gains in others. This local branch is forced to follow the company's policy even though they have had considerable losses in recent years.

The company's strategies have not changed since the end of the 1980s and they cannot detect differences between policies inside and outside the EU because they seldom work with countries outside this area. In this context they find it hard to evaluate the role of the single market since their strategy has not changed, but they have noticed some reductions in the commissions charged by the banks.

As for foreign exchange management costs, they find it is a significant cost not to be able to clear their accounts of assets and liabilities in different currencies. Costs that accrue from the performance of real business transactions aimed at neutralizing foreign exchange risks coming from other transactions are also considered to be important. As for costs that are incurred because various currencies must always be converted 'in one's head,' they are not sure those could be easily avoided even with a common currency for Europe.

They find that pure foreign exchange management costs have decreased since the end of the 1980s, especially bank commissions, but they think that this is in great part due to their playing a more active role in negotiating with the bank. Therefore, they cannot evaluate the role the single market may have played in the decline of these costs. They have been able to barter down all commissions but this is not only because of the increase in competition inside the financial market but also because in the last few years they have increased their volume of transactions considerably. In any case it is certainly true that the fact that they are always receiving very good offers for services by other banks allows them to put pressure on the banks with which they negotiate regularly.

Even though their parent company in France has established the policy of non-protection against foreign exchange risks, they have raised the question several times. Their losses in this area as a consequence of the successive devaluations of the peseta have been costly in recent years and have forced them to re-think deviating from the general policy. In any case, the parent company has denied them the authorization to do so.

In short-term operations, they do not have an important risk, but in the long term they do. In fact, they have a long-term loan in French francs for which they have had a significant loss because of the various devaluations of the peseta. In this sense they always get the same answer from the head office: the company's policy is to let the market operate freely and compensate losses and gains for operations in different currencies.

A common currency in Europe would not mean important savings for this company in terms of protection costs or pure foreign exchange management costs, but it would help them to eliminate the risk with which they are faced. If there had been such a common currency in the last five years, they would have saved a significant amount.

Company B

Characteristics of the company:
Total turnover: PTA 40,160 million
Total exports: PTA 24,270 million
Total imports: PTA 4,200 million
Number of employees: 2,700

Company B is a large Spanish company which belongs to sector 35 of NACE Rev2, Manufacture of Other Transport Equipment. Their activity is the manufacturing of railway vehicles and components.

They export 60% of their total production, and it all goes outside of the EU area. In particular 40% goes to Eastern Europe and 60% to underdeveloped countries of the rest of the world.

Their volume of imports represents more than 10% of their total turnover and 65% comes from the EU area, 25% from Japan and the remaining 10% from the rest of the world.

Company B is a very large firm dedicated to building infrastructures. They import some raw materials from industrialized countries and they export their products to underdeveloped economies. For that reason they invoice most of their exports in dollars instead of their client's local currency which is normally very unreliable. On the other hand. their imports are invoiced in a wide range of foreign currencies: 25% in Deutschmarks, 10% in dollars, 25% in yen, 15% in Belgian francs and 25% in French francs.

Their volume of foreign trade is very high and it consists of very few large operations a year. Therefore it is crucial for them to hedge against the risk of foreign exchange rates. A surprise in the fluctuation of the foreign exchange for one single operation could lead them to bankruptcy. It is not surprising that they have a very good financial department which has a deep knowledge of the financial markets and the products they offer and makes good use of them.

Since the end of the 1980s, Company B's corporate strategies to protect against foreign exchange rate fluctuations have changed because new possibilities have emerged with the evolution of the market. In any case, their strategy for currencies within the EU area is not different from that for those outside the area. They make much more use of financial strategies than of real strategies because they think that the financial market is sufficiently developed as to allow them to hedge against any risks of this nature. They do not let financial aspects affect their real operation.

The strong development of financial markets is the most important reason for their change in strategies. This development has increased the supply of financial products that require protection against exchange rate fluctuations. The implementation of the single market is very important because its particular measures have increased competition in financial markets which has promoted Company B's development. As a result of all this, they find that the fall in bank charges is outstanding.

As for the costs of foreign exchange management, they do not have other special costs apart from those mentioned in the questionnaire (bank commissions, time periods for transactions, etc.). They do not consider not being able to clear assets and liabilities in different currencies in their accounts a cost and they do not perform real business aimed at neutralizing foreign exchange risks arising from other transactions. They try to make their real activity independent from the financial one. They find the financial market developed enough to allow them to cover any risk derived from the operation with exchange rates, so they perform their real activity freely, regardless of the currency in which it is to be cashed. At the same time, they do not think that having to convert the various currencies in one's head is a cost at all.

Their pure foreign exchange management costs have decreased since the end of the 1980s. This is due to the development and increase in competition in the financial market in which the implementation of the single market has had a very important role, that is, in recent years, the single market, and in particular, concrete measures like the deregulation of financial markets and the dismantling of barriers to capital movements, have promoted an enormous development of the Spanish financial market which has improved operations with all foreign currencies. It is to be pointed out that Company B only works with strong currencies so, from their point of view, all strong currencies have benefited equally from the development of Spanish financial markets.

Company B's general policy is to avoid any potential risks and so they protect themselves from all those risks for which there exist means of protection. In this sense they consider that in any operation there are three levels of risk: industrial, financial and uncontrollable. The first level can be controlled by them. The second is the one in which exchange rate fluctuations are included and though they have no control here, they can avoid this type of risk basically with financial strategies. The third one includes political events (wars, etc.), natural disasters and other events which occur more frequently in the under-developed economies with which they work. Here they cannot do much to protect themselves.

The implementation of a single currency in Europe would be positive for them. It would allow them to work with fewer currencies and fewer exchange rates, which would also be more stable, but they do not think of it as something which would have a strong impact on their costs or on their daily operation.

Company C

Characteristics of the company:
Total turnover: PTA 768 million
Total exports: PTA 721 million
Total imports: PTA 94 million
Number of employees: 71

Company C is a medium-sized company that is part of an international group of firms. The capital of this group comes mostly from Mexico.

They belong to the brewery sector and, as an example of the activity of the group, they manufacture the Mexican beer. Company C is dedicated to the manufacturing of brewery machinery. They operate basically in two ways:

(i) as brokers: buying machinery from their dealers in Germany and selling it to their clients, in which case it is those clients who run the risks of foreign exchange;
(ii) as plain manufacturers: they also build their own machinery which they sell to foreign clients; thus, they always try to invoice these operations in domestic currency.

The result is that all of their imports come from the EU and most of them (91%) from Germany. On the other hand, 65% of their exports go to the rest of the world which, in this case, accounts mainly for Mexico. The remaining 35% of their exports is distributed between the EU and the USA. Most exports go to their group which they consider to be a captive market and, at the same time, free of risks.

They invoice most of their exports in domestic currency (66%) but they also invoice some in DM and some in dollars. Their imports are mainly in DM since most of them come from Germany.

Since they belong to a group, they are always backed up by them and, at the same time, their president is a major shareholder of one of the biggest banks in Spain. This gives them even more security as well as very good financial conditions in every transaction they make.

The group has a very strict general policy of never having debts, especially in foreign exchange. They are very strict about this point. So, we could say that their strategy to avoid foreign exchange risks is twofold: on the one hand, they never contract debts in foreign currencies, and on the other, they either invoice in domestic currency when they sell their machinery or the client takes the foreign exchange risk when they are operating as intermediators.

They cannot judge the effects of the single market because their present way of operating is a complete transformation of their previous structure and has been in practice only a short time. Before, they used to work mainly with a German group named SEEGER, but a few years ago they were acquired by their Mexican group and so they changed their way of functioning. Now they have penetrated new markets and widened their activity. In any case they have noticed some decrease in bank commissions and pure foreign exchange management costs.

Since they do not operate much with the countries in the EU and have changed their activity recently, they cannot evaluate the effects that the single market has had for them, but they

think that a common currency for Europe would not have a significant effect on their costs. In any case it could mean lower costs for those companies for which they act as brokers.

They had the impression that their example could be somehow representative of their sector, because many of the firms are subsidiaries of a larger corporation that backs them up and they do not have much difficulty in dealing with foreign currencies.

Company D

Characteristics of the company:
Total turnover: PTA 3,620 million
Total exports: PTA 1,150 million
Total imports: PTA 286 million
Number of employees: 286

Company D is a medium-sized Spanish firm which belongs to the publishing and printing sector. They export 32% of their total output and most of those exports (86%) go to the EU area but they also do business with non-EU European countries and with the US. Their import volume is not very big and all of it comes from the EU area and is invoiced in domestic currency.

Foreign exchange risks do not affect much of the daily operations of the company. Their strategy is based on invoicing all imports in domestic currency and discounting all foreign currency bills as soon as they formalize them. Consequently, the only risk they run is the one which arises from the fluctuations in exchange rates that might take place from the time the order is placed and the price is registered until the time it is invoiced and so the bill is discounted straight away. This normally takes about a month. They do not consider this risk to be important and generally differences in prices are compensated throughout the year. They do many export operations per year and that allows them to cover losses with gains among the different transactions without ever having significant damages.

Their strategy has not changed substantially since the end of the 1980s, nor has the behaviour with EU countries been different from that with non-EU countries. In this sense it is important to note that they hardly operate outside this area, so it is difficult for them to compare.

In their strategy to avoid foreign exchange risk, real protection is as important as financial hedging and this has not changed since the late 1980s.

Costs of managing multiple currencies are not very important and they do not have specific personnel dedicated to administering these transactions. It is their treasury department that is in charge of all transactions regardless of which currency they are invoiced in. Since they do their import transactions in domestic currency and exports in foreign currencies, they cannot use netting for their corresponding assets and liabilities and that can be considered as a cost, but they do not perform real business transactions aimed at neutralizing the risk of fluctuations in exchange rates. They keep their real activity separate from the financial side.

They negotiate their import prices at a global level among all their suppliers, so they cannot distinguish between countries inside and outside the EU. A different thing are the charges that

their bank applies in transferring money to each client according to the countries they come from. In any case, though they buy their imported raw materials in domestic currency, when negotiating their price the state of the different exchange rates has a big influence, especially that for the domestic currency since it will allow them to negotiate better prices.

Since the end of the 1980s these costs have decreased a lot, especially bank charges, which they negotiate with their bank at the beginning of each year. The deregulation of the financial market with its increase in competition has allowed them to get better deals each year because they always had other competing banks offering them very low prices and that gave them a lot of strength in negotiations with their usual bank. They have really experienced an important improvement in the conditions for operating with their foreign clients not only in lower bank charges but also in the speed of executing the transactions. The role of the single market is crucial here and especially particular measures like the deregulation of financial markets and the dismantling of barriers to capital flows.

Financial hedging costs have not really changed since the end of the 1980s. Their financial strategy is to discount foreign bills as soon as they get them and the cost of doing so has not changed. They do notice an improvement in speed and facility in doing these operations, especially with the EU, but they do not consider those improvements to have a real impact on their functioning costs but to be a general improvement derived from the better way of functioning of a more developed financial market which is also better integrated in Europe. The single market and its particular measures that allow for more competition in this market play a crucial role in all this.

Increased fluctuations in exchange rates in the area of the EU since 1992 have not had an effect on their costs for financial hedging because they did not affect the price of discounting foreign currency bills which is the type of financial hedging they use. These fluctuations did have an effect on the risks they have since they determine the price of an order and the moment they formalize the operation with a bill, but in general it has been a favourable effect since the domestic currency has been falling. Nevertheless, in the operations they do with the UK they have been having losses of around 4–5% in the expected profitability because of the poor performance of the pound.

The single market and its particular measures of deregulation in the financial market is translated into a greater facility and flexibility in the performance of their financial hedging (discounting bills) but it has not made it shift to new services with more attractive prices.

The implementation of a single currency in Europe would simplify their exporting activity, and would reduce some costs, but it would not have a very big effect on their outcome.

Company E

Characteristics of the company:
Total turnover: PTA 2,100 million
Total exports: PTA 1,700 million
Total imports: PTA 200 million
Number of employees: 40

This company is a medium-sized Spanish firm which belongs to the chemical sector. They manufacture a wide range of antibiotics which are not very sophisticated and are therefore sold at a low price and to underdeveloped markets.

Their main export market is Asia, where their sales offices in China market up to 50% of their total exports. They also export to Eastern Europe and a small share to the EU area where their clients normally buy the products to re-export them outside the EU. They invoice their exports mainly in dollars. Their import volume is low and invoiced 100% in domestic currency. They import 70% from the EU area and the other 30% from the rest of the world other than the USA, rest of Europe or Japan.

The activity of this firm involves a considerable exchange rate risk and they try to protect themselves mainly with exchange rate insurance, but they also use the discounting of foreign currency bills.

Before 1991, they used to do only manufacturing and no marketing. However, they have begun to market their products and open themselves to foreign markets so that in five years they have made themselves present in 25 countries. In doing so, general corporate strategies have changed. This includes those strategies adopted to avoid risks arising from fluctuations in exchange rates. Before 1991 they had very little exporting activity and they did not need to protect themselves against exchange rate fluctuations. Their increase in exports has made it necessary to design hedging strategies. Now their main market is China, but Germany and Austria are also important.

They try to buy their imports in local currency (pesetas) and invoice their exports in dollars, so they cannot clear different currencies in their individual foreign currency accounts, and they do not perform real business transactions to neutralize the risk in exchange rates derived from other transactions. They try to make their real activity independent of the financial aspects. As for the costs incurred because various currencies must always be converted in 'one's head' they think that it is a risk instead of a real cost. They think that when they are negotiating a contract which is going to last one year, they need to 'imagine' the most feasible exchange rate. There they have the cost of uncertainty.

Since the late 1980s they think there have been no great changes in pure exchange rate management costs other than a decrease in bank charges motivated by the increased competition in financial markets. But they consider there is a great difference between transactions within the EU area and those outside this area. In operating with the rest of the world both domestic managing and bank managing costs are higher. When they operate with other countries, they need to use letters of credit and that makes everything more expensive, while in transactions within the EU area everything is easier and there is also more information about clients in order to judge the potential collection risk. Here it is important to take into account that their operation with countries outside the EU area is mainly with under-

developed Asian countries and so it is reasonable that they find such a great difference in transacting with them compared with EU countries.

They find that the single market benefits them in many ways because it gives more flexibility and transparency in operating with its member countries which implies less costs. It greatly simplifies their activity with these countries and gives them more security. They think it makes member countries closer to each other and the increase in information allows them to know who their clients are and how to evaluate their collection risk.

As for particular measures of the single market, they think that deregulation of financial markets has been extremely positive since the increase in competition has led to lower bank charges, simplification in foreign transactions and increased freedom of operation.

Company F

Characteristics of the company:
Total turnover: PTA 658 million
Total exports: PTA 0 million
Total imports: PTA 376 million
Number of employees: 21

Company F is a small firm which belongs to a multinational French company. They manufacture machinery and equipment aimed at keeping the environment clean, but this particular branch does mostly the marketing of equipment manufactured at the parent company. They do some manufacturing, but it is of minor importance.

The present company was constituted in March 1993 when they converted a plain broker comprised of 50% Spanish capital and 50% French capital, into the present firm which now belongs entirely to the French company.

Since their operations have changed so recently, their corporate strategies have changed as well. In particular, strategies aimed at avoiding risks from exchange rate fluctuations have changed, but it is hard to determine what part is not due to the change in their activity. Their change in strategy has been to invoice all imports in domestic currency instead of in the currency of the country from which the imports come, as they did before. This change is very recent and has made real hedging strategies much more important than financial ones. Before adopting this strategy, they used to operate with foreign currencies, mostly the French franc, and they did not use financial hedging though they had costs of managing those foreign currencies. They cannot distinguish between strategy changes inside and outside the EU because they always operate inside this area.

Their costs of managing foreign currencies have changed since they now invoice in domestic currency, but before shifting to this strategy, they did notice some changes in these costs. In general these costs have increased since the end of the 1980s but this may be largely due to their structural change. They think that the single market has given great agility to foreign currency operations, but they have not been able to benefit from it completely because they only import and do not export. Again, they cannot determine if there are differences in the changes within the area of the EU and outside, because they only operate inside this area.

As for the costs of financial hedging, they cannot say much about them since they do not use such a strategy. Nevertheless, they do think that the single market has had a positive influence in financial markets and has greatly contributed to their fast development, to the lowering of prices and to the creation of new and more attractively-priced services.

The implementation of a single European currency would not have a big influence on this company. It would hardly affect their costs but gradually diminish the uncertainty in the price of their imports which, though invoiced in domestic currency, are nevertheless affected by the fluctuation of the exchange rates.

Company G

Characteristics of the company:
Total turnover: PTA 390,169 million
Total exports: PTA 49,191 million
Total imports: PTA 0 million
Number of employees: 21,000

Company G is a very important firm in the construction sector in Spain. It is a Spanish company with its head offices in Madrid, but it has both sales offices and production facilities in Algeria, Argentina, Colombia, Chile, Ecuador, Egypt, France, Morocco, Mexico, Peru, Portugal, Puerto Rico, Qatar, Tunisia, and Venezuela.

All the exports of this company go to the rest of the world (other than Europe and the USA) because they mostly build infrastructures for underdeveloped countries. They invoice these transactions partly in strong currencies (50% dollars and 10% DM in 1994), and the rest in the local currency for each case (pesos, sucres, dirhams, etc.).

The activity of this firm involves a great exchange risk and therefore they are very careful in protecting themselves against it. Their exports are big infrastructure constructions for under-developed countries. To get these projects, they must bid against other companies. This process normally consists of a budget expressed in dollars. It normally takes two or three months for the client to select the three best offers, and that opens a period of negotiations in which they have to start improving the conditions of their offer in order to make it more attractive than the others. They also need to look for banks to finance the project. The client takes another three to six months to decide, and then three to six more months to finalize the operation. Then the project starts and the client pays the first instalment which is about 15 to 20% of the total. At this point almost a year has passed since they made their first offer, and exchange rates may have varied a lot. Then, the development of the project takes an average of two to three years. They get paid according to the pace of the construction which can be influenced by uncontrollable factors. For example, they cannot work during the monsoon season in Thailand.

This way of operating involves a very big exchange rate risk which is made even bigger by the part of local currency expenses which are always present in a project of this nature. If we take into account that the company's operation is to do a few projects a year but very large ones, we realize how important it is for them to be sure not to have an exchange rate setback in one operation, because that could lead them to bankruptcy.

Since the late 1980s their corporate strategies against foreign exchange risks have changed partly because financial markets have developed very quickly and it is easier to make transactions in foreign currencies. They find it easier now to operate with ERM currencies. Their strategies are completely different when applied to European currencies versus non-European currencies other than the dollar. In this sense it is important to note that 40% of their export invoicing is done in underdeveloped countries' currencies. It is not surprising that they have different strategies in protecting themselves against the exchange rate risks of those currencies and in protecting themselves against the DM. But there are no great differences between the strategies for European currencies and those used for the dollar. Since the late 1980s financial protection has continued to be more important than real protection.

Concerning costs of foreign exchange management, they do not consider the costs that accrue because different currencies cannot be mutually cleared in individual foreign currency accounts to be important and they do not perform real business transactions in order to neutralize the risk of fluctuations in exchange rates. They consider that risk is a cost, and it is a risk to make an offer to a potential client that might take six months to answer, because the value in pesetas of that offer can change a lot in those six months. Since they work with very big operations that take so much time to be decided, they have a lot of risk with exchange rates, and that is a high cost.

The costs of pure foreign exchange management have declined since the end of the 1980s because there is more stability within European currencies and that has diminished the uncertainty. Consequently, pure management costs have diminished particularly strongly within the area of the EU.

Because of the decline in pure foreign exchange management, the role played by the single market is determinant. The dismantling of barriers to the movement of capital is important because it allows capital to be assigned more easily. Costs, including domestic costs of handling different currencies, have fallen. The decrease in bank charges is significant but there are also important decreases in the prices of other services, and new services have been developed as a result of greater competition between banks. Nevertheless, all these improvements also apply to non-European currencies. Every currency has been favoured in general by the increased competition and strong development in financial markets. Though European currencies are the most favoured, there is no great difference between these and other strong currencies like the dollar.

Financial hedging costs have diminished substantially since the late 1980s. There has been a significant decline in the prices of financial services as well as the development of new products that are more attractively priced. In this sense there is some difference when operating with EU currencies, but it is not very important. The change in hedging costs has occurred for all currencies, though somehow more intensively within the EU area because the difference in interest rates has narrowed and the prices for exchange rate hedging have reflected that difference.

The increased fluctuations in exchange rates in the area of the EU since 1992 have increased the costs of financial hedging. Before this year, convergence was expected between the EU countries, and, in consequence, the costs of financial hedging were low. The monetary storm of those years, and in particular the devaluations of the peseta, made the situation unclear and the costs rose.

At the beginning, the perspectives for the single market were good and the atmosphere was full of what has been described as 'Euro-optimism' which had its positive effect on exchange rates. But that has changed and the situation now is different. People have become much more sceptical and markets reflect that. Particular measures like the deregulation of financial markets have had a strong influence on prices. The increase in supply has made prices fall, and new services have come out. All these new instruments allow for better management of financial hedging, so costs have decreased.

The operation of Company G involves a lot of exchange rate risk. They present an offer to their potential client which is partly invoiced in a strong currency like the dollar or some ERM currency, but there is always some part invoiced in the local currency which is usually very unstable. The existence of a common currency in Europe would be positive for this company since it would reduce their problem to one single parity, and that would simplify their estimates, and they would have to design strategies for a single currency. Since it implies a decrease in their risk, it would make things easier for them. They also consider the expected fall in interest rates from the introduction of a single currency to be an important benefit for them.

Company H

Characteristics of the company:
Total turnover: PTA 498,045 million
Total exports: PTA 378,176 million
Total imports: PTA 291,798 million
Number of employees: 12,906

Company H belongs to a very powerful industrial and financial group that manufactures motor vehicles. Major decisions are made at their headquarters in Paris which every branch company must follow. In this interview we concentrated on the situation of the Spanish branch which operates within all the Spanish territory.

This company is always protected by the powerful group to which it belongs and most of their exports are appointed to group companies. Regarding the financial aspects, it benefits from the favourable conditions offered by the group banks.

This is a large company which both imports and exports almost entirely within the EU. Inside this area, France has the lion's share of all foreign trade.

Since the end of the 1980s a twofold tendency can be observed in their corporate strategies. On one hand they are shifting from invoicing in foreign currencies to invoicing everything in pesetas. At the same time, for foreign trade operations and treasury excess they only use banks belonging to the group. They operate with two banks in particular, one in France and the other in Switzerland, which are 100% participants of group companies. They protect their deposits by transforming them in either pesetas or French francs according to the group policy.

The role of the single market and its financial measures is crucial for this company. Without the single market they would not have been allowed to use foreign banks' services, nor would

they have been able to compensate foreign account items within companies of the group. Inside the group a lot of netting is done as a protection strategy.

There is no difference between strategies for EU and for non-EU currencies since they hardly operate outside this area.

As for real and financial protection, they have not observed differences in the evolution of both sorts of strategy. They cannot tell if one of them has gained importance against the other.

Regarding foreign exchange management costs, they do not think other important costs exist besides those mentioned in the questionnaire. None of the additional costs we enumerate coming from the literature are worth considering from their point of view. Their company is very big and they work with huge volumes where it is hard to materialize significant costs related to those subjects. On the other hand, since they operate with such big volumes they easily obtain advantages derived from economies of scale.

In general their management costs have decreased quickly since they have been able to operate with banks from their group. These banks render services to them without charging commissions; in fact, they treat them as if they were another bank. In light of such favourable treatment, they minimize the costs of operating with foreign currencies.

If there was a common currency in Europe their savings in the treasury area would be meaningless, but there would be important benefits coming from the economic framework. If the Belgian franc, the DM and other strong currencies had heavy weights in the common currency, there would not be much difference with the present situation because they already have small exchange rate differentials between each other.

Lately, the motor vehicles sector has faced many problems derived from fluctuations in exchange rates, and Company H has suffered from them. In the last year and a half, the Italian lira has been falling with respect to the French franc. Italian manufacturers have not changed their situation while Company H has been producing with costs in French francs. When they sell to Italy they have to lower their prices to compete while they still have their costs in francs. The result is that they have been narrowing their margins all the time. This is a general problem in their sector for all manufacturers in France, Germany and any other country with strong currencies trying to sell to countries with a currency which is falling (southern countries in general). They lose money when they exchange it. The motor vehicle manufacturer wants a stable environment in which currencies are not fluctuating so much in such short periods of time. When exporting they are hurt by the difference between currencies in the north and in the south.

Company I

Characteristics of the company:
Total turnover: PTA 4,800 million
Total exports: PTA 3,500 million
Total imports: PTA 2,200 million
Number of employees: 430

Company I is a company made up of 100% Spanish capital. It belongs to the manufacturing of electronic machinery sector and is ranked the tenth largest company of its sector in Europe. They trade heavily in exports which account for 73% of their total turnover. Their exports go mainly to Europe, both EU and non-EU countries, and their imports come only from the EU area.

Two main points are to be mentioned about this company. First of all, they work mainly with currencies inside the EU area. They used to work also with the Japanese yen, but they abandoned that because it was fluctuating too much. The second point is that their protection strategies are basically of the real type. They try to orientate their exports towards stable currencies like the DM and they denominate their imports in domestic currency (pesetas). They do have financial hedging, but it is meaningless. They hedge 10% of their foreign currency liabilities using exchange rate insurance.

Since the late 1980s, their corporate strategies have not changed substantially. They try to concentrate export invoices in strong currencies like the DM even though they might be addressed to countries which have nothing to do with Germany. Financial hedging has gained importance since the end of the 1980s but they rarely use this sort of protection. They give more importance to real protection strategies and they have not changed their strategies which have always been to use exchange rate insurance.

This company works mainly with currencies from the EU area and the strategies mentioned above apply to currencies both inside and outside the EU. They do not make any distinction here, but it is mostly because they hardly operate with any currencies outside the EU.

The implementation of the single market has not affected the real activity of this company since their product (electronic machinery) was never subjected to customs tariffs. In the context of our study, they do think the single market and its measures have had a positive effect on their costs since it has allowed them to open accounts in foreign banks and has lowered the commissions they pay to the banks.

Concerning foreign exchange management costs, they do not have costs arising from the fact that different currencies cannot be mutually cleared in their accounts nor do they perform real business transactions aimed at neutralizing the risks of fluctuations in exchange rates. They do consider that to be always converting the various currencies 'in one's head' is a cost.

Besides these costs and those mentioned in the questionnaire, there are other important costs for them such as those derived from the inclusion of clauses on price changes in the contracts. If the exchange rates fluctuate, they have to travel abroad to renegotiate the new prices after the fluctuation. Another important cost is the uncertainty of not knowing how much they are going to receive for an operation until the accounts are closed. During that time they are always recalculating prices. The last cost they mentioned is the opportunity cost of not doing an operation in a currency which fluctuates too much.

Pure foreign exchange management costs have decreased since the end of the 1980s, and again, they cannot distinguish between currencies inside and outside the EU. The reasons for the lower costs are that it is easier to open foreign currency accounts which are easier and cheaper to deal with now than they were before the deregulation of the financial market and the dismantling of barriers to capital movements. The single market has also affected the real cost of selling abroad (inside the EU). It was much more difficult to conduct business with

European countries before the implementation of the single market. These clients were much harder to convince, negotiations were much more complicated and more effort was required to close an operation. It is to be pointed out that they hardly make any use of financial strategies, so they do not perceive their evolution.

For them the fall in bank commissions is very important since foreign banks perform a large volume of their collections. A small reduction in the collection charges and other commissions is translated into large savings. There has been an important shift of their foreign exchange management towards more attractively priced services in the area of the EU.

As has already been pointed out, they do little financial hedging and they work almost exclusively with EU currencies. It is precisely for EU currencies outside the Exchange Rate Mechanism for which this financial hedging is done. Since the end of the 1980s, this strategy has not suffered many changes, but its costs have certainly declined even though the increased fluctuations of exchange rates within the EU area have contributed to the rise in the prices of exchange rate insurance.

They have the impression that the decrease in these costs is in great part due to the fact that their company has grown and become much stronger than in the late 1980s. That gives them more power in negotiating prices. They think that the influence of the single market must have been very positive though. The implementation of a free financial market designed to attract more services with lower prices is important. The increase in competition and in supply has lowered the prices. There is also a wide variety of services from which they can choose the best combination of options available.

Company J

Characteristics of the company:
Total turnover: PTA 1,052 million
Total exports: PTA 112 million
Total imports: PTA 824 million
Number of employees: 18

Company J is a small wholesale dealer of electronic machinery. Its activity is summarized in that they import electronic machinery from Japan and they distribute it mainly within the EU area. The machinery with which they do business is basically pin-ball machines and video games for game rooms, and they also deal with personal video games. They invoice 65% of their imports in Japanese yen and the rest in EU currencies. The largest share of their exports is invoiced in domestic currency and the rest, except for 2% in US dollars, is all invoiced in EU currencies.

Up to now, Company J has been using exchange rate insurance to hedge their liabilities in Japanese yen. Presently they are about to change this financial strategy to a real one: to work in domestic currency.

The reason they have to use protection strategies for the Japanese yen is because it varies more than other currencies. Its exchange rate can even change several times a day. The yen is also more difficult and expensive to control.

They have decided to shift to importing in pesetas because that way they save the costs of hedging and at the same time their European clients are much more willing to accept Spanish pesetas than Japanese yen. They clearly move towards EU currencies because these offer greater management facilities.

The dismantling of barriers to capital movements have had an impact because if they were not allowed to have foreign exchange accounts in Spain they would not be interested in invoicing in those currencies, and so their activity would be restrained.

Company J does not incur costs for not being able to clear different currencies in their foreign exchange accounts. Neither do they perform real business to neutralize exchange rate risks. As for the costs of having to convert the various currencies 'in one's head', they think that they are meaningless. These costs show up more at the commercial level than at the financial one. An important cost from their point of view is the opportunity cost of waiting until the exchange rate is favourable to do a specific transaction. Sometimes they lose operations because they have waited too long.

Since the late 1980s they have noticed that it is easier to get information about foreign exchange markets. Information costs have decreased and now more publications are available, as well as other means of obtaining information about exchange rates and their evolution.

Management costs in general have declined since the end of the 1980s. Fixed costs for each operation have decreased considerably, and Company J expects them to fall even more.

As for differences between currencies inside and outside the EU, they perceive that the decrease in costs is stronger in the case of the EU. In any case, EU currencies force the costs for other currencies outside the EU down.

Among the reasons for the changes in foreign exchange management, the fundamental one is the increased competition in the banking sector. With the entry of foreign banks in Spain, competition has been growing fast. The client is becoming more demanding each day and banks have to offer more and better options. Commissions are the best example for reduced costs in this context.

The single market has greatly shortened payment times. The dismantling of barriers to capital movement has been crucial. The starting point was the dismantling of customs barriers, which has made everything easier. Then the suppression of capital barriers was the last step which was both necessary and a logical consequence of the previous measures. This company has especially noticed the decline in bank commissions in its costs. Bank commissions have a fixed component for every operation and then another which varies with the volume of the transaction. This company does relatively few operations that account for big amounts.

Since Company J is a small company, it has not noticed a greater selection of new more attractively-priced services. They tried to use options but their bank would not allow them, so at the end they had to stick to common formulas like exchange rate insurance and documentary credit.

They have not noticed a big difference in the evolution of financial hedging costs, but the greater fluctuations in European exchange rates since 1992 have had some influence on increasing the price of insurance.

IV.5. Summary report of all interviews

In order to further analyse the costs related to dealing with the various foreign currencies, personal interviews were done for ten of our surveyed companies. We chose companies spread across the different sectors: one from the paper printing and publishing sector, two from the chemical industry, one from the motor vehicles industry, one from the other transport equipment sector, two manufacturers of industrial machinery, one manufacturer of electronic machinery, one firm from the construction sector and a wholesale dealer. In this sample, we tried to find a trade-off between the representation of all sectors according to their importance in the Spanish economy and the inclusion of firms which had a size and a geographic orientation of exports which allowed them to adequately evaluate the sort of questions which were to be asked.

In these interviews, both strategies and costs were examined in connection with the changes that have taken place in recent years. The objective was to evaluate the effects of the single market. Specific characteristics of each company were also taken into account. We found that for a couple of companies, internal changes in their organizations had also been taking place lately. For this reason, it was sometimes hard for them to distinguish between changes due to the single market and changes due to their own internal reorganization.

In general, we found that corporate strategies for foreign currencies are tightly related to the nature of the real activity performed by the company and, of course, to the volume of this activity. For instance, in companies for which the exporting activity consists of few operations but very large ones, protecting against exchange rate fluctuations is vital, so they are very careful about it and they make sure to cover themselves against any avoidable risk. On the other hand, firms that have export activity consisting of many small transactions per month are less scrupulous about protection. In general, the latter can compensate losses in some operations with gains in others, so sometimes they even leave the market to operate freely. An unexpected fluctuation of exchange rates can mean nothing for the latter but could lead the former to bankruptcy.

The volume of foreign trade transactions and their share in the total turnover of the company will also determine how much the firm will be concerned with foreign exchange management and protection costs. The bigger the company, the more developed their financial department is and, therefore, the better use they make of financial products and the stronger they are in negotiating commissions with banks.

Corporate strategies adopted to avoid exchange rate risks have changed since the end of the 1980s for all the interviewed companies except for one. This exception is a branch of a French multinational that has to follow the general policy determined by its headquarters. In three of the companies, these changes were mainly due to the internal reorganization of their activities. In general, medium-sized companies shifted towards increased invoicing in EU currencies which are more stable. Larger companies are the ones who claim to use more financial strategies than before. These are also the only ones that have experienced changes in the selection of different financial strategies.

In determining whether strategies have changed only or with particular intensity within the EU area, we found a variety of situations which had nothing to do with specific characteristics like size, but were related more with the geographical orientation of their exports. Most of the answers implied a bigger importance of real strategies for EU currencies. Some companies

recognized a preference towards working with EU currencies because they are now easier to handle. Thus, easier transactions together with more stable EU foreign exchange rates have also led to diminished protection for EU currencies because the risks are considered to be smaller now. There were a couple of cases which said they could not evaluate this because they only operate within the EU area. Two companies claimed not to have a different strategy for currencies inside and outside the EU, therefore, it is important to consider which are the currencies outside the EU with which the company works. In the cases where no differences were made, it was observed that the non-EU currencies with which they worked were strong currencies, mainly the US dollar.

Most of the companies surveyed have not increased their financial protection versus their real one for EU currencies. Just one company said it had done so. In the other cases some even said it was the opposite: real strategies were now used more intensively than financial ones. This was mainly because of the greater stability in exchange rates within the EU area.

Only the larger surveyed companies said they have experienced changes in the selection of the different financial strategies for currencies within the EU area. To this we should add that they are the only ones that have a specific department dedicated to dealing with foreign currencies which is very well informed about all the possibilities offered by the markets and about their daily evolution.

About the reasons for changing strategies adopted for EU currencies, most of the answers pointed to the increased facility in operating with these currencies and to the greater stability in their exchange rates since the end of the 1980s. In two cases the reasons were of an internal nature and one of the largest companies answered that since the late 1980s many new financial products had come out which were not available before.

Everyone gave much importance to the role of the single market in this context. Particular results of the single market, like the fall in commissions and the possibility of working with foreign banks, were highlighted. Concrete measures associated with the single market such as the dismantling of barriers to the movement of capital were valued very favourably by all firms. They pointed out the resulting increase in facility in operating with EU currencies.

We talked with our companies about the existence of other costs of foreign exchange management in addition to those specified in the questionnaire. In this context, we asked them about the importance of several examples of costs found in the literature and also asked them if they could think of any relevant costs not mentioned before. All of the surveyed companies except one said that not being able to clear different currencies in individual foreign currency accounts does not imply a cost. Only two firms gave importance to costs that accrue from performing real business aimed at neutralizing the risk of fluctuations in exchange rates. The others, in general, said that they try to keep their real activity apart from the financial one. As for costs that are incurred because one must always be converting the various currencies 'in one's head,' most of the firms thought they were meaningless. In a couple of cases they said it was better described as a risk than as a cost, and in one case they had their doubts that it could be avoided even with a common currency.

Among the additional costs of managing foreign currencies pointed out by the companies, there were the costs of uncertainty about exchange rates while transactions are pending to be closed. The opportunity cost of not doing an operation or waiting to do it because the currency

in which it is to be done is not stable was also mentioned. In addition, costs accrue from price clauses in contracts which come from having to renegotiate all prices each time exchange rates fluctuate.

Everyone considered that pure management costs have evolved favourably since the end of the 1980s. They said it is easier now to work with foreign currencies, there is more information and less uncertainty. Everybody said that these costs have declined since that time except for one company which considered they have remained the same though they found it hard to compare since their export activity has changed so much.

We asked our interviewed companies if the pure foreign exchange management costs have changed only or particularly strongly within the area of the EU. They all said that these costs have declined since the end of the 1980s. Two companies could not judge the difference between EU and non-EU because they hardly operate outside this area. Two large companies which work mainly with the US dollar apart from EU currencies said that there was no difference in the behaviour of these costs inside or outside the EU. The rest claim that costs for EU currencies have diminished more intensively than for other currencies, but many think that the difference is not substantial because costs for EU currencies have pushed down costs for the rest of currencies. Companies that work with weak non-EU currencies as well as with EU currencies are the ones who say to have noticed a much more intensive decrease in management costs within the EU area than outside it.

In response to the question about reasons for changes in costs within the EU area, two companies attributed them to the increase in their activity, the rest mentioned a variety of reasons which can be considered as being totally or partly consequences of the single market. Two of the largest firms gave the rapid development of financial markets as the main reason. Another two firms mentioned the increase in competition within this market. The rest referred to the flexibility and increase in transparency in the financial market, to the possibility of using banks abroad, and to the possibility of opening foreign currency accounts in Spain.

Everyone thought that the role of the single market in the reasons for the decrease of foreign exchange management costs was important. Nevertheless, the appreciation varied much across companies regardless of their specific characteristics like size, foreign trade shares in output, etc. Answers ranged from giving the single market all the credit for these changes to just some of the credit. In the two companies where major internal changes have taken place in recent years, little importance was given to the single market. The rest of the firms had different ways of evaluating it but the general tendency was to give it a very positive appraisal.

The dismantling of barriers to capital movements was evaluated very positively in all cases, though there were two firms which said they could not judge it easily because of their change in activity. Of the others, two said that it was crucial and the rest gave it great importance.

Everyone gave much relevance to the deregulation of the banking industry which puts pressure on bank charges. All interviewed companies had noticed this in their costs and some said that it gave them more power in negotiating with their usual bank. Almost everybody emphasized the importance that the reduction in bank commissions has had on their costs, but in one of the companies they said that, in order to compensate for these reductions, banks now charge for everything, including services which used to be free, so in the end the improvement for them was not that noticeable.

The role of shifts in foreign exchange management towards more attractively-priced services in the area of the EU was evaluated differently by the firms according to their size and volume of foreign exchange transactions. The largest companies and those with the biggest shares of foreign currency operations were the ones that considered this important. The smaller firms said they were too small to benefit from the wide range of possibilities offered by financial markets. Companies where foreign exchange transactions do not account for a big share of the total trading volume did not give importance to this matter.

In answering the question about whether costs of financial hedging have declined, remained the same or increased, there were basically two groups. The first group comprises the larger of the interviewed firms who said that these costs have declined. The second group includes the smaller companies and their answer was that financial hedging costs have remained the same. When we asked the same question but only for currencies within the EU area, almost everyone said that financial hedging costs have decreased. Companies which operate with strong non-EU currencies, like the US dollar, said that the decrease in financial hedging costs had equally affected all currencies. On the other hand, the companies who said that this reduction had occurred with special intensity for EU currencies are the ones that work with weak non-EU currencies.

About the importance of the increased fluctuations in exchange rates in the area of the EU since 1992, all the companies except one said these fluctuations have had a big negative impact on their costs of financial hedging. The exception is a firm whose financial strategy is to discount foreign currency bills as soon as they formalize them. They said that the price for discounting had not been affected by those fluctuations.

The reasons companies gave for the changes in financial hedging costs within the EU area were all related to the rapid development of financial markets. They mentioned the increase in competition and the possibility of working with foreign banks. In some cases they said that it was easier now to work with EU currencies, and others said that the improvement had equally affected all currencies.

As for the decrease of financial hedging costs for EU currencies, everyone gave great importance to the implementation of the single market. The role of the realization of a free financial market designed to allow more attractively priced hedging services was evaluated positively by all firms, but not everyone gave importance to the shift of financial hedging activities towards more attractively-priced services within the EU. In fact it was only large companies with an important export share of their total turnover which thought this was important. The rest seem not to have profited too much from a wider selection in financial markets, maybe because of incomplete knowledge of those markets or perhaps because some of the services are only attainable for firms with large volumes of foreign exchange transactions.

V. Country report V: United Kingdom

V.1. Introduction

ECOTEC Research and Consulting Ltd was retained by the IFO Institute in Germany as part of a consortium of six consultancies to contribute to a trans-European study on the Costs of Managing Multiple Currencies for DG XV of the European Commission. The company undertook a survey of companies within the UK to determine the impact of multi-currency management in the single market.

Specifically ECOTEC was responsible for the following:

(a) the selection of a sample of 1,500 to 2,000 firms with an employment base in the UK;
(b) to manage a postal survey for the above sample with a target response rate of 400–500 companies;
(c) to analyse the data via a set of cross-tabulations and to provide a short report containing an interpretation of the results;
(d) to undertake ten face-to-face interviews with key employers; and
(e) to provide a contextual note on exchange rate issues as they impact upon companies in the UK.

IFO provided a standard questionnaire, the coding scheme for its analysis, the cross-tabulations to be used in the analysis and a guide to the sample of firms to interview on a face-to-face basis. This was to ensure consistency across the different country studies.

This report is divided into the following sections. Section V.2 provides a contextual note on exchange rate issues in the UK. Section V.3 sets out the methodological considerations of the study, including the sampling approach. Section V.4 contains an analysis of the results of the survey, and Section V.5 explores some of the issues raised in more depth based upon the interviews with key employers.

V.2. The effect of multiple currencies in the EU on business activity in the UK

Economic theory suggests that multiple national currencies between trading partners can be expected to lead to losses in economic efficiency. Efficiency will be lower than in the case of a common currency for two different reasons: due to losses associated with physical differences in currencies (transactions costs), and due to uncertainty over the rate at which currencies can be exchanged in the future.

V.2.1. Transactions costs of multiple currencies

The first economic efficiency loss from multiple currencies is generated from the transactions costs involved in operating across national political borders. Business transactions across borders operating different national currencies entails the exchanging of national moneys. There are several ways in which the need to exchange moneys increases costs in business activity.

Transactions costs may be incurred in the purchasing or the sales operations of firms. For firms whose major component of supplies is imported a significant cost will be experienced in arranging for the settlement of debts to the supplier, who will require payment in their own

national currency. The final cost of supplies will be increased by the charge made to exchange domestic for other currencies.

Where a firm sells its products or services in another country, payment will be received in the national currency. Thus, at first sight, there will be no transactions costs to the firm selling overseas whose customers must exchange their currencies for those of the supplier. However, at the margin, it can be expected that some firms are marketing products at lower prices overseas in order to remain competitive with firms who are selling into their domestic markets. Where this is the case, firms will be absorbing the transactions costs of customers in the form of reduced revenues. In the absence of the need to exchange currencies, selling prices and firms revenues might be higher.

A more indirect cost of multiple currencies is the ability of firms to exercise price discrimination across several markets. Different prices for identical goods across the EU are not transparent when quoted in differing national currencies. When applying appropriate rates of exchange it is still evident that price discrimination is undertaken in certain markets. Research has tended to concentrate on the retail of major consumption goods such as automobiles, where prices in Belgium have consistently been lower than those in Italy or the UK, for example (Barnes and Barnes, 1995).

In the longer term, a further efficiency loss may result from the existence of transactions costs. If these costs represent a significant proportion of total costs, a firm may opt to relocate to the market with which the majority of its trading takes place. The theoretical justification for this view, the reduction of business costs, appears strong. However, in practice, transactions costs would have to be very significant for a firm to relocate on these grounds alone. Where relocations do occur, they are only likely to involve larger multinational companies which are not tied to specific supply markets for labour or other inputs.

Businesses wishing to borrow capital amounts in non-domestic currencies will generally face higher interest rates than companies which operate in the overseas market. Certain firms can eliminate this increased cost of borrowing by undertaking interest rate swapping operations. The cost of such operations requires that amounts borrowed are relatively large, however, and most firms will continue to face higher interest rates. To the extent that the higher rates lead to marginal investments becoming non-economical, this cost may hold back business activities or expansions. The cost of such an effect is operationally very difficult to split from other costs associated with investing overseas or borrowing in non-domestic currencies. Capital market structures vary from country to country, for example, with part of any increased costs being due to this.

Exchange transactions costs are the most easily identifiable of all the costs associated with multiple currencies. They are faced by all individuals or firms when conducting economic activity across political borders in the EU. The Commission has estimated their cost at 0.25% – 0.5% of total EU GDP per year (European Commission, 1990). However, while transactions costs reduce economic efficiency, they do not imply that national income is decreased to the same extent. Exchange transactions costs accrue to other parts of the economy, principally the banking sector. It is likely that the UK, due to the predominance of London in European capital markets, enjoys a positive gain in GDP associated with the transactions costs of EU businesses.

V.2.2. Exchange rate uncertainty costs

The second efficiency loss associated with multiple currencies arises from the risks associated with exchange rate uncertainty, i.e. uncertainty over the rate at which moneys can be exchanged at some point in the future to facilitate business activities.

This uncertainty adds to firms' costs where their planned operations are, or might be, affected by a different rate in the future to that which they use to make decisions today. To the extent that future rates can be anticipated, uncertainty costs will be reduced. However, observed fluctuations in the EU's ERM over the recent past illustrate that exchange rates continue to fluctuate between EU Member States. It is reasonable to assume that businesses do not anticipate 100% of such variations when planning ahead (Gros and Thygesen, 1992).

An assumption of risk-adversity among individuals and firms is generally accepted to hold across most economies, implying that economic welfare is lost wherever risk is apparent (Gravelle and Rees, 1981). In the case of business activity, the risk of exchange rate uncertainty weakens the incentive to engage in transactions outside the area of the national currency (Nielsen et al., 1992). This affects both purchasing and sales decisions as well as longer-term investment activity.

In general, a reduction in activity might be expected to follow from an increase in the level of risk that a firm faces in order to reduce exposure to that risk. However, a number of models have shown that this may not be the case (de Grauwe, 1994). Without empirical investigation it remains unclear whether firms react to increased risk by increasing their activities or decreasing them. In other words, future changes in the exchange rate are not only a risk, they also represent opportunities to increase profits.

Insurance, or hedging, against the adverse consequences of exchange rate fluctuations is the usual method by which firms can reduce the costs associated with uncertainty in exchange markets. The hedging of currencies involves purchasing the right to a fixed, guaranteed and known exchange rate in the future. Revenues or payments in non-domestic currencies will therefore be known with certainty in advance.

Hedging strategies primarily limit the loss potential of exchange rate fluctuations. More complex strategies can limit downside risks while leaving some upside profit potential to firms should exchange rates move favourably. In general hedging reduces negative risks, and therefore it is expected that the level of business activity with hedging should be higher than in it's absence. The greater the degree of hedging, the less likely it is that economic activity will decline in the face of exchange rate uncertainty.

While hedging can reduce exposure to the risk of adverse exchange rate movements, there is one cost to firms that is unavoidable. Most firms will be of insufficient size, and lack the necessary skills, to conduct their own hedging strategies. Therefore, a financial cost will be incurred by most businesses in their use of specialist financial services. These costs are generally small relative to the underlying transaction that they are attributable to. As such, they are not thought to lead to firms cancelling marginally profitable activities.

An unavoidable cost of multiple currencies, even where hedging takes place, is the difference between the future rate and the spot rate of exchange at the time of the ultimate transaction. The forward rate is based upon interest rate differentials between two economies and will, therefore, rarely match the prevailing spot rate – based as it is on many other factors – at the

time of its maturity. It will be an efficiency loss to the economy as a whole, but will only involve reduced revenues to the financial sector firms involved in the hedge. To the extent that this burden is passed on, it will also represent a cost to business.

A further effect expected from exchange rate uncertainty is the relocation of some firms to markets with lower exchange rate risks. This supports a gravitational model of investment towards certain countries of the EU. Benelux currencies, for example, have not fluctuated against one another for a substantial period of time. Relocation decisions, however, are likely to rely on many other variables in addition to the availability of reducing exchange rate risks. Thus, significant relocations based on these costs alone are thought to be untenable.

Exchange rate fluctuations may be sufficiently large in real terms to affect whole sectors of economic activity. If large fluctuations in currency cross-rates exceed differences in the underlying economies then a currency can become significantly misaligned. Misalignment of a national currency will affect the relative prices at which domestic and non-domestic goods and services are traded. In the extreme, this may force the closure of firms that are competitive at correctly aligned exchange rates. Recent fluctuations between EU currencies, although at times representing significantly misaligned rates, are not thought to have continued for sufficiently long periods for firm closures to have resulted (de Grauwe, 1994).

V.3. Methodology

V.3.1. Sampling

A sample of 4,000 firms was drawn from a listing of UK companies provided by Source of Supply (UK) Ltd. Each firm was known to engage in foreign trade. A larger sample was selected than the contract stated as it was believed that there would be a low response rate to the survey. This foresight proved to be accurate.

The sample was drawn on a random basis and covered firms in all industrial sectors; the approach taken was agreed in advance with Dr Rolf Dumke of IFO. It was not possible, a priori, to construct a sample of firms representative of the structure of the national economy in terms of firm size, export share, and industrial sector, as these variables were not known from the database listing. Moreover, the UK economy is heavily biased towards small service sector firms which do not engage in foreign trade. As the study is concerned with the costs of multiple currency management it was felt any sample could only be broadly representative of industrial sector and export share.

Each firm in the sample was sent a questionnaire together with a covering letter explaining the purpose of the study and a letter of support from the European Commission. The response rate to this postal approach proved to be very low (2.5%). The reasons for this poor response are several, all of which have been previously discussed with IFO. Primary causes, though, are thought to be:

(a) staff being too busy to complete the questionnaire;
(b) difficulties experienced in completing the questionnaire;
(c) survey fatigue, at least two other surveys on similar topics were undertaken in the UK (by the CBI and the DTI) around the same time; and
(d) lack of interest in the subject area.

As a consequence of the low response rate it was necessary to undertake an extensive telephone follow-up operation with non-respondents to achieve the required number of responses. This ensured that the required aim of 400 responses was achieved. The difficulties of the survey are evident in the continuing low response rate and this does raise an issue on the representativeness of the eventual responses. This issue is tackled further below.

V.3.2. Analysis of the data

The data were entered into a spreadsheet and analysed against key criteria such as industrial sector and firm size, the results of which appear in Section 4. The structure of these tables was provided by the IFO Institute to provide consistency with data from other participating countries. The proportions shown in these tables are based on the numbers of firms responding to a particular question, not on the total number of firms responding to the questionnaire as a whole. Not all firms were able, or willing, to answer every question asked; consequently response rates for some questions are lower than for the questionnaire overall.

All financial information is for the financial year 1994, as the most recent date for which firms had full accounts available.

A limited number of tables were calculated using weighted figures. In these instances the method to derive the weights was provided by the IFO Institute, again to ensure consistency across countries.

V.3.3. Issues arising

A number of issues have arisen in the course of the study which it is worth stating here to aid interpretation of the results. These broadly fall into two areas:

(a) difficulties with the questionnaire; and
(b) difficulties with the specified industrial sectors.

(i) Questionnaire difficulties

Many of the smaller companies, which do not employ specialist financial staff, found the questionnaire confusing, particularly the terminology used. Many, for example, were unclear as to the meaning of the term 'hedging'. It is not apparent that even after this had been explained they were any more clear as to how to classify their financial activities.

Firms were often uncertain as to the distribution of their exports and imports. The information was rarely held in an easily accessible form and had to be specially derived for the survey. Often this resulted in companies only being able to make general estimates and led to a large proportion of responses which did not total 100%. Many companies claimed that this was not a relevant issue as the currency they invoiced in often differed from the national currency. There was general agreement that the information was easier to obtain for exports than for imports.

In contrast other firms found it difficult to provide details of the proportion of invoices made in different currencies, holding this information only on a country-by-country basis.

A more specific source of confusion arose around Question IV.1. Firms we spoke to questioned why it focused on foreign currency liabilities and failed to address foreign

exchange assets. The terminology of this question also caused some confusion among respondents.

The large proportion of respondents who undertook no hedging measures, primarily because they invoiced only in sterling, resulted in large portions of the questionnaire being non-applicable. This has created a small number problem on a number of tables, where low returns have boosted the relative importance of certain responses.

(ii) Selected sectors

Once the survey was completed the IFO Institute provided details of how the analysis should be undertaken. As part of this they specified the sector groupings by which to cross-tabulate the analysis. These groupings do not accord to any UK classification system and so it has proved difficult to obtain national statistics which relate to those sectors. Best estimates have had to be made in all cases. It should also be realized that the classification system specified does not contain all UK industrial sectors. Consequently national figures provided are the aggregate of the specified sectors and do not accord to total national production.

A difficulty specific to the UK is the manner in which statistics on foreign trade flows are collated. There is no single data source which covers both manufacturing output and flows of service goods. This restricts the value of national comparative statistics in the required format specified for the study.

V.4. Analysis of results

V.4.1. Representativity of the sample

Ideally any sample would reflect the industrial structure of the UK and the propensity to engage in foreign trade of the UK economy as a whole. The sample frame selected reflects the guidance received from the IFO Institute, namely:

(a) a concentration on industrial firms over the service sector;
(b) an encouragement to consider larger firms; and
(c) agreement that the survey should concentrate on export-related activities.

The sample is broadly representative of the export structure of the UK economy (Table I.1.1). The sample is not representative of the overall UK industry in terms of the mix of manufacturing to service sectors nor by firm size (Tables I.1.4 and I.2.1) due to the sample frame used. It has also not been possible to ensure that the final sample reflects the value of total output within the UK economy (Table I.1.2), primarily due to the effect of under-sampling the service sector.

The survey is broadly representative of the balance of exports by industrial sector, given the above caveats. It is apparent from Table I.1.1 that despite efforts to match the proportion of firms sampled in each industrial sector to the proportion of exports made by that sector this has not been entirely successful. This is due in part to the uncertainty over the value of exports by individual firms before surveys are returned and partly to the impact of small numbers for certain sectors, particularly in the mining and food, beverages and tobacco sectors. The iron, steel and non-ferrous metals industry is the most obvious anomaly. This arises due to the effect of one firm with an above average value of exports.

V.4.2. Characteristics of firms

Over half of the firms which responded to the survey operated in the mechanical engineering, electrical and automobile industrial sector. This reflects, in part, the breadth of industries contained within this sector, as specified by the IFO Institute. It also reflects the importance of this sector in terms of the proportion of exports it accounts for nationally (46% by value). Twelve percent of firms operated in the service sector, reflecting a lower sampling rate owing to a lower propensity to export (Table I.1.1). Almost half of the firms which responded to the survey were small firms with between 10 to 99 employees, a third were medium-sized (below and Table I.2.1).

Size of respondent firms

Micro firms (<10 employees)	62	16%
Small firms (10–99 employees)	181	45%
Medium firms (100–499 employees)	134	33%
Large firms (>500 employees)	24	6%
Total	401	100%

Source: ECOTEC Survey.

The share of domestic turnover of responding firms for which exports accounted was evenly distributed. For 38% of firms it comprised less than a quarter total turnover while for 37% it comprised more than half (Table I.2.2.1). There was a limited variation on this pattern between sectors, partly resulting from the small number of responses in certain sectors. The sectors with proportionately lower export shares were those of the processing industry and building and construction.

Imports as a proportion of total domestic turnover tended to be lower. Three-quarters of firms who responded to this question stated that imports were less than a quarter of turnover from domestic production. This was consistent across industrial sectors (Table I.2.2.2). The only sector where imports formed a significant proportion of turnover was the food, beverages and tobacco industry, which might be expected, but is also partly due to the low number of responses in this sector (3).

Sixty-eight firms (17%) have production facilities abroad, mainly in the USA (54%) and European ERM countries (54%) (Table I.2.3.1). More firms (142) operated sales facilities abroad, particularly in ERM countries (42% of responding firms) and the USA (Table II.3b).

V.4.3. Foreign trade links

Firms who took part in the survey traded in a wide variety of geographical locations. The EU was the largest single foreign market both for exports (40%) and imports (49%). The USA was also an important market, particularly for imports (26%); firms were three times more likely to export to the rest of the world[30] than to import from these countries (Table II.1a).

[30] All countries outside of Western Europe, Japan and the USA.

Three quarters of all responding firms exported goods or services to other states in the EU, and half imported from these countries. The USA and other Western European countries were also important markets (Table II.1b). Three-quarters of all firms exported goods to the rest of the world while a quarter imported from these countries.

Invoicing practices did not follow the geographical distribution of trade (Table II.2a). Most firms invoiced in sterling, US dollars or DM, only a quarter of firms invoiced in other currencies. Almost half of firms who responded invoiced their exports solely in sterling. Certain industrial sectors appeared more likely than others to trade in specific currencies, although interpretation is complicated by the small numbers involved. The iron and steel industry had a greater propensity to invoice in DM than was generally the case (53% of firms compared to 20% of firms overall). Firms in this sector were also more likely to invoice in US dollars, as were firms operating in the mining and the food, beverages and tobacco sectors.

Firms were less likely to pay for imports in sterling, although for just under one-third of firms this was the sole currency of transaction (Table II.2b). Other currencies were a more important medium of exchange (35%) than was the case for exports but again sterling, the dollar and the DM appear to be the currency of choice.

Seventy-six firms had head offices located abroad (Table II.3c); two-thirds of these managed foreign exchange operations for the UK. Two-thirds of company head offices were located elsewhere in Europe, a quarter in the US and around a tenth elsewhere. None were located in Japan.

V.4.4. Exchange rate fluctuation and business strategies

Firms did not substantially differentiate their choice of business strategy between European currencies and non-European currencies.

The most important strategies adopted by firms towards managing exchange rate fluctuations are:

(a) financial hedging measures;
(b) other strategies; and
(c) in-house measures.

The more that firms were involved in exporting goods and services, the more likely it was that they would undertake hedging measures to cover their exposure (Table III.1a). Firms with a higher turnover were also more likely to hedge their exchange rate risks.

The size of the firm is an important guide to the business strategy adopted (Table III.1b). Larger firms, as measured by workforce, were more likely to engage in financial hedging measures while smaller firms were more likely to rely upon in-house measures or adopt other strategies. Smaller firms were also slightly more likely to increase their domestic orientation, or reorient the source of imports, than larger firms but this was not a significant strategy for any size band. The propensity of a firm to import or export, based on the proportion of domestic turnover (Table III.1c), did not have a significant influence on the business strategy adopted against exchange rate fluctuations. Nor were those firms with a greater exposure to foreign markets consistently more likely to engage in measures to reduce that risk.

The industrial sector in which the firm operated was not found to have a significant impact on the business strategy adopted to reduce exchange rate risks (Table III.1d).

Around half of the responding firms replied that their business strategy was prompted by long-term exchange rate changes rather than short-term movements (Table III.2a). For the other half, day-to-day and month-to-month movements were, in general, the triggers underlying the strategy. Weighting of returns to reflect exports or turnover did not affect these results.

While half of all firms replied that fluctuations in sterling against ERM currencies was important to their business strategy, and slightly more than half were concerned with sterling/dollar movements, just 5% felt that fluctuations of sterling against other non-EU currencies was an important issue. It is believed that this reflects the currencies which firms trade in rather than any inherent confidence in the stability of non-EU currencies. As seen earlier firms trade in a limited range of currencies despite a broad geographical spread of trading relations.

The size of the company was not an important factor in determining the time horizon over which firms reviewed their business strategy, nor was the proportion of domestic turnover accounted for by exports. Firms with a higher proportion of imports (based on domestic turnover) were, however, more likely to consider very short-term fluctuations in exchange rates (Table III.2c).

No consistent practice was discernable in the proportion of foreign exchange denominated assets/liabilities which were hedged by firms in the UK. Overall firms tended to hedge a greater proportion of non-EU currencies than other currencies. This pattern did not vary by firm size, import or export share of total production or, significantly, by industrial sector (Tables IV.1a to IV.1d).

Hedging

The predominant means chosen to hedge against exchange rate fluctuations was via forward exchange transactions (Table IV.2a). No other means of financial hedging was significant, even when export and turnover weighted. Larger firms were more likely to hedge a greater proportion of their liabilities by forward exchange transactions, while smaller firms were more likely than large firms to use alternative means such as exchange rate insurance, although this approach was adopted by only a few companies (Table IV.2b). No significant difference could be detected in the approach chosen by different industrial sectors (Table IV.2d).

The predominant reason firms gave for choosing the hedging approach undertaken was one of cost. Weighting the questionnaire responses by exports reduced the relative importance of costs, although when weighted by official statistics its importance was reinstated, technical handling and the payment period of accounts in foreign currency increased in importance. Such a weighting also reduced the relative importance of the flexibility of the instrument in the firms' decision-making process (Table IV.3a). A similar pattern was apparent when the responses were weighted for turnover.

Smaller firms were more likely to regard cost as the most important reason for choosing a particular form of hedging (Table IV.3b). Larger firms were more likely to regard the

flexibility of the instrument as the most important factor. There was, however, no consistent pattern discernable across all firm sizes.

Other measures

Firms used a variety of other business or internal measures to reduce their exchange rate risks. The most common responses, when weighted by responding firms' exports, were (Table IV.4a):

(a) changing the terms of payments (64% of firms);
(b) increased invoicing in sterling (46% of firms);
(c) pricing policy (43% of firms);
(d) increased invoicing in another international currency (41% of firms);
(e) netting of foreign currency assets and liabilities (33% of firms).

Larger firms were more likely to net out their foreign currency liabilities and assets, while smaller firms were more likely to change the terms of payment on a contract (Table IV.4b). Larger firms were also more likely to switch their invoicing to sterling or another international currency. The measure chosen did not depend upon the proportion of production accounted for by exports or imports.

The approach chosen varied by industrial sector (Table IV.4d), although interpretation of these figures is complicated by the low number of responses in certain sectors. Engineering firms were less likely to net their foreign currency assets and liabilities, as was the service sector, while firms in the processing sector were slightly less likely to change the terms of payments as a measure against exchange rate risks.

V.4.5. Transaction costs and costs of hedging

Bank costs

Over half of firms reported that banks' commissions and other processing fees amounted to less than 0.5% of the amount exchanged (Table V.1a). This proportion rose to 75% when the results were weighted by export intensity, and to 66% when weighted by turnover. In general firms did not feel that these costs had changed since the late 1980s. Of those which did report a change in costs, there was a general consensus that they had increased rather than decreased. Around one-third of respondents felt that these costs were less expensive for intra-EU transactions.

A greater proportion of smaller companies reported higher bank commissions and other processing fees than larger companies, possibly due to the impact of flat rate charges and lack of volume discounts. No other variable was found to influence the relative cost of commission and processing charges.

Administration costs

More than half of firms reported that they had specific staff to administer foreign currency transactions; this rose to 70% when the responses were weighted by level of exports. On the whole the cost to firms of administering foreign currency transactions was less than 0.5% of

foreign trade volume (Table V.2a). These costs had remained largely the same since the late 1980s.

The larger the firm the more likely they were to report that they had specific staff to administer foreign currency transactions (Table V.2b). Smaller firms tended on the whole to find the annual costs more expensive than larger firms, as a percentage of foreign trade volume. Perhaps understandably those firms for which exports or imports formed a high proportion of total domestic production were the most likely to have specific staff to administer their foreign currency transactions (Table V.2c).

Hedging costs

Annual hedging costs were reported at less than 0.5% of foreign trade by 80% of firms, costs rose slightly when weighted by exports but remained at less than 1% for 95% of firms. Most firms reported that the costs of hedging had not changed since the late 1980s (Table V.3a). Smaller firms tended to find annual hedging costs relatively more expensive than larger companies (Table V.3b). Smaller companies were also more likely to report that their costs had increased since the late 1980s (a quarter of respondents). On the whole the larger the share of domestic production accounted for by exports the lower were the hedging costs, the same was not true for imports.

Costs of money transfers

On average bank transfers in foreign currency took around four days longer compared to local currency transfers. The difference for transfers of EU currency compared to non-EU currencies was very small – particularly when export weighted. Most firms reported that these timings had not changed since the late 1980s. On the whole larger firms reported a shorter additional period for bank transfers than smaller companies; there was also great variation between sectors, ranging from an additional two days in the construction sector to five days in the iron, steel and non-ferrous metals industry. From the responses gained it would appear that those firms with a greater dependency on exports/imports as a proportion of production experienced the least additional delay in bank transfers.

V.5. Case study reports

As an integral part of the study a series of ten face-to-face interviews were undertaken with a mix of firms. The purpose of this exercise was threefold:

(a) to discuss levels of difficulty of individual questions. The outcome of this aspect is incorporated in Section 3;
(b) to explore corporate strategies towards foreign exchange management in greater depth than a brief questionnaire allows; and
(c) to examine the changes in strategies and costs which have occurred in recent years, evaluating the effect of the single market.

A summary of the results of this exercise for the last two points follows. Each case study has been written up separately and is contained in Appendix VB. The results of the interview process should be regarded with caution as they are based upon only ten interviews with firms in a range of sectors. They do, however, provide a valuable addition to the quantitative assessment of Section 4.

V.5.1. Firms selected

The selection of firms was initially specified by the IFO Institute to cover the following mix: one multinational corporation; one bank representing the financial sector; one firm representing the tourism sector and seven manufacturing firms of a representative size. It did not prove possible to obtain an interview with a representative of the tourism sector and so an additional multinational corporation was substituted. Furthermore, no member of the banking sector contacted was willing to divulge details of their hedging policy. This information is treated as strictly confidential. The size of banking operations in the foreign exchange markets is such that the institutions are concerned that providing information on corporate hedging strategy will influence market conditions. A leading UK bank did consent to discuss its operations on behalf of UK firms, providing a valuable insight as to how exchange management practices have altered over time among the wider corporate community. The eventual mix of interviews was as follows:

(a) two multinational corporations;
(b) one leading bank;
(c) seven manufacturing firms operating in a range of sectors. Firm size varied from 50 to 4,000 workers.

In common with standard practices the anonymity of responding firms has been preserved.

V.5.2. Corporate strategies

Invoicing practices

Invoicing practices can vary significantly between different product markets, industrial sectors and even between firms operating in the same market. Firms may also treat imports and exports in a different manner when determining their invoicing strategy. A company's hedging policy is heavily influenced by its invoicing practices. The more volatile a currency on the international markets, the more risk is attached to trading in that currency and the greater the incentive to hedge those risks in some manner. Where feasible firms attempt to circumvent these risks by trading in an alternative, more stable currency.

The crucial issue for foreign exchange management is not which countries firms trade in but which currencies they trade in. Key points which influence the choice of approach adopted by firms over invoicing appear to include, *inter alia*, the following:

(a) *The underlying currency of the market.* Three companies stressed that they had no control over which currency to trade in. The market they operated in used a recognized international currency and all trade was denominated in this currency. The currency varied by market: US dollars, DM and sterling were all preferred currencies for different markets. The underlying currency depended largely on the relative trading strength of leading firms. Where US firms were dominant the market tended to be denominated in dollars, where German firms dominate denomination tends to be in DM. Another firm suggested that although customers had requested invoicing in local currency they had resisted this on the grounds that the market was generally denominated in sterling.
(b) *The perceived volatility of currencies.* Firms were more willing to trade in a local currency where there was a well developed forward market, or where they perceived

little risk of fluctuations in exchange rates. Where firms were operating in exotic currency areas they tended to invoice in a recognized international currency, particularly the US dollar.

(c) *The currency of preference of different trading areas.* A number of firms commented that their invoicing practices were based on the currency of preference of the region with which they were trading. One firm commented that it was standard practice to conduct trade with South-East Asia in US dollars, particularly with the Chinese market. Another commented that Arab nations also preferred to trade in US dollars.

(d) *The market position of the firm.* Where firms are not in a position to exert individual influence over a market then they will follow the pricing, and currency policy, of the market leader.

(e) *The currency in which the firm operates.* At least one UK-based firm operates entirely in dollars, although it pays dividends in UK sterling. This has a significant impact upon the hedging strategy it adopts as it regards dividend payments as a predictable fixed cost and hedges this sterling liability.

Corporate strategies adopted

There was no identifiable consistent corporate strategy adopted towards foreign exchange management. Each firm's strategy was specific to its own business requirements and to its perception of the risks imposed by exchange rate fluctuations.

In general a firm undertook hedging operations in order to protect its profit margin. This tended to be on a transactions basis and the firm regarded a small cost to be a reasonable 'insurance' premium to pay for the certainty provided. A limited number of the firms interviewed aimed to make a profit on their hedging operations. They tended to be more experienced in operating within the currency markets and to dedicate staff specifically to foreign exchange operations. The strategy of these (larger) firms was on the whole significantly more sophisticated than that of the other companies interviewed.

Although the interviews bore out earlier findings that larger companies tend to hedge more of their activities than do smaller firms there was no evidence that larger firms *necessarily* took a more sophisticated approach than smaller firms. One large company (14,000 employees) had the same corporate strategy as a firm with 400 employees.

Key points include:

(a) *Size and flow of transactions.* Firms were more likely to hedge large transactions than small transactions. Where firms had a regular high volume flow of low value transactions they were less likely to engage in hedging activities, especially where these transactions were conducted in a variety of currencies.

(b) *Perspective of company.* One firm took a strategic approach to its currency activities rather than the transactions approach which was more common among firms. With a high but largely predictable volume of low value transactions the company assessed its net foreign currency requirements over forthcoming months and took out forward positions to cover.

(c) *Pre-set price lists.* One company set a fixed six-month price list six months in advance. It took out forward positions on an annual basis to cover expected receipts. The company was able to predict likely volumes of sales in its mature markets enabling an element of certainty to its forward operations. Without taking out such forward

cover the company was concerned that its profit margin could be eradicated due to circumstances beyond its control. In immature markets, where the volume of future sales was less predictable, the company tended to trade in sterling.

Strategies adopted

Eight out of nine companies interviewed undertook measures to guard against exchange rate risk, either through in-house measures or financial hedging measures, or a mixture of the two. The tenth firm traded primarily in sterling and so did not undertake either in-house or hedging measures.

The measures adopted varied slightly but were essentially of two types:

(a) in-house measures based around netting all foreign currency assets and liabilities; and
(b) hedging measures based on forward exchange transactions.

Firms tended to use a mix of both measures to suit their particular circumstances. The more centralized a firm's foreign exchange operations the more likely it was to consistently net its foreign exchange assets/liabilities. Few of the firms interviewed engaged in hedging operations other than forward exchange transactions.

The perceived advantage of forward exchange transactions included, *inter alia*:

(a) *Their cost.* They involve no up-front costs.
(b) *Their certainty.* They provide a known return at a specified date.
(c) *Their simplicity.* They are easy to understand, monitor and operate.

An acknowledged disadvantage of forward exchange transactions is the difficulty which can arise if a client fails to pay on time, leaving the company with a forward liability due for redemption. The companies interviewed dealt with these eventualities either through operations on the spot market or through bringing forward or pushing back other currency flows to compensate.

The largest companies were, understandably, more sophisticated in their market operations. These firms also operated in the options market, often taking out cylinder options to limit their potential exposure. These large firms had established their treasury operations as profit centres and expected to break even on their hedging operations, or to make a profit. The bank supported the view that financial managers of all firms were becoming more sophisticated. It would often advise firms to take out options where these were in the interests of the client firm's trading position. Financial managers were becoming more adept at understanding the intricacies of the market and responding to such advice.

Changes in business strategies since late 1980s

The companies interviewed have, on the whole, developed a more systematic and sophisticated approach to foreign exchange management since the late 1980s. This is largely regarded as a consequence of a greater awareness of the issues involved, together with increasing skills. Firms did not consider that their actual business strategy towards managing multiple currencies and exchange rate risk had altered significantly since the late 1980s.

One firm had moved away from its previous practice involving the discounting of bills to concentrate entirely on forward exchange transactions, largely, it claimed, due to a shift in Department of Trade and Industry support away from this area. Other firms reported that they had increasingly centralized their foreign exchange management operations and made them more systematic. In each case this was to improve administration procedures, ensure the company adopted a common approach to its foreign exchange operations and to reap the benefits of scale, particularly when netting foreign currency receipts and liabilities across the company.

Do changes in strategy have an EU dimension?

Firms did not report any significant difference in the strategy they adopted towards countries in the EU and those outside of the Union. This was because it was the currency of transaction which they regarded as the important variable. On the whole firms did not treat EU currencies any differently to non-EU currencies. Sterling/dollar transactions tended to be regarded in a manner similar to sterling/DM transactions for example. This was partly because of sterling's location outside of the ERM. One firm commented that they were now more likely to consider hedging sterling against other currencies in the ERM than they were before sterling left the mechanism. To set against this, another firm commented that they had always hedged sterling against other ERM currencies simply because of the range of movement allowed within the mechanism. Even a 2% shift in exchange rates can endanger a tight profit margin.

There was no suggestion that the advent of the single market or bank deregulation had any significant impact upon the development of firms' business strategy towards managing multiple currency transactions.

V.5.3. The costs of foreign exchange management

Do there exist costs other than those specified in the questionnaire?

Firms did not consider that they incurred costs from multiple currency transactions beyond possible commission charges; the 'spread' offered by dealers and associated management costs. Alternative costs suggested, such as those which accrue because different currencies cannot be mutually cleared in individual foreign currency accounts; those arising from compensatory trade transactions or costs of 'in the head' currency conversions were not regarded as important. There was an acknowledged opportunity cost in operating a number of foreign currency accounts, due to the slightly lower interest rates payable on these balances, but this was not regarded as significant.

Have costs of 'pure foreign exchange management' changed since the end of the 1980s?

On the whole the costs of foreign exchange management were believed to have remained much the same since the late 1980s, although the experience of different firms was revealing. The one area in which firms generally perceived costs to have changed was in a decrease in banking costs. One firm perceived costs to have decreased due to the advent of electronic banking, another reported that bank charges in general had declined. The competition to gain business meant that banks had reduced the spread offered and had also become more competitive regarding commission charges. The banking respondent replied that they do not charge any commission on foreign currency transactions undertaken on behalf of firms for

whom they deal directly. One of the larger firms has opened its own dealing room since bank deregulation which has altered its cost structures entirely.

Is this EU-specific?

The decrease in banking costs is not EU-specific. As one firm commented, charges are volume related, not geographical. Most firms did not perceive any difference in the costs of dealing with EU currencies compared to non-EU currencies and did not feel that one was relatively more expensive than the other, compared to experience in the late 1980s. Firms had not moved to use alternative services which might be offered elsewhere in the EU and did not perceive the single market as having any influence on their currency operations or associated costs.

Have the costs of financial hedging changed since the late 1980s?

Firms did not regard the costs of financial hedging against fluctuations in foreign exchange rates to have changed significantly since the late 1980s, either within the EU or outside of the European territory.

Appendix VA: Data tables

Table I.1.1. Exports of responding firms in the UK

Sectors	Number of received surveys	Responding firms		Exports of responding firms		Exports according to official statistics	
		Number	in %[1]	Value in local currency	in %[2]	Value in local currency (million)	in % of total exports
				1994		1994	
Basic materials industry	36	27	8.9	132,853	3.1	21,073.4	13.0%
Iron, steel and non-ferrous metals industry	16	11	3.6	2,151,470	50.4	8,712.4	5.4
Mechanical engineering, electrical and automobile industries	225	169	55.6	901,763	21.1	63,098.8	38.9
Processing industry	63	51	16.8	359,958	8.4	20,742.2	12.8
Mining	3	3	1.0	611,000	14.3	8,946.2	5.5
Food, beverages and tobacco industry	4	3	1.0	9,000	0.2	182.4	0.1
Total industry	347	264	86.9	4,166,044	97.5	122,755.4	75.7
Building and construction	5	3	1.0	13,117	0.3	NA	NA
Services	49	37	12.1	92,791	2.2	39,460.0	24.3
Total	401	304	100	4,271,952	100	162,215.4	100

[1] of all responding firms. [2] of total exports of all responding firms.

Table I.1.2. Value of output of responding firms in the UK

Sectors	Number of received surveys	Responding firms		Value of output of responding firms		Value of output[3] according to official statistics	
		Number	in %[1]	Value in local currency	in %[2]	Value in local currency (million)	in % of total output
				1994		1992	
Basic materials industry	36	29	8.4	1,319,479	40.1	26,777.4	2.5
Iron, steel and non-ferrous metals industry	16	12	3.5	4,390,803	0.4	26,373.1	2.5
Mechanical engineering, electrical and automobile industries	225	199	57.8	2,817,040	25.7	110,792.2	10.6
Processing industry	63	51	14.8	1,240,799	11.3	85,743.3	8.2
Mining	3	3	0.9	2,101,000	19.2	45,269.6	4.3
Food, beverages and tobacco industry	4	4	1.2	45,100	0.4	61,826.3	5.9
Total industry	347	298	86.6	11,914,221	97.1	356,781.9	34.0
Building and construction	5	5	1.5	41,000	0.4	62,389.6	5.9
Services	49	41	11.9	274,587	2.5	630,953.0	60.1
Total	401	344	100	12,229,808	100	1,050,124.5	100

[1] of all responding firms. [2] of total output (turnover from domestic production) of all responding firms.
[3] gross output, not value added.

Table I.1.3. Employment by responding firms in the UK

Sectors	Number of received surveys	Responding firms		Employees of responding firms		Employees according to official statistics	
		Number	in %[1]	Employees (1,000)	in %[2]	Employees (1,000)	in %
				1994		1994	
Basic materials industry	36	36	9.0	9.0	7.4	245.4	1.2
Iron, steel and non-ferrous metals industry	16	16	4.0	47.4	39.0	381.5	1.9
Mechanical engineering, electrical and automobile industries	225	225	56.1	34.9	28.7	1,569.1	7.6
Processing industry	63	63	15.7	25.1	20.7	1,411.0	6.9
Mining	3	3	0.7	0.9	0.7	244.4	1.2
Food, beverages and tobacco industry	4	4	1.0	0.4	0.3	485.7	2.4
Total industry	347	347	86.6	117.7	96.8	4,337.1	21.2
Building and construction	5	5	1.2	0.5	0.4	767.8	3.7
Services	49	49	12.2	3.4	2.8	15,408.4	75.1
Total	401	401	100	121.6	100	20,513.3	100

[1] of all responding firms. [2] of total employees of all responding firms.

Table I.1.4. Characteristics of firms in the UK – Official Statistics (by firm size – number of employees)

Employees	All firms		Micro firms: up to 10 employees		Small firms: 10 to 99 employees		Medium size: 100 to 499 employees		Large firms: 500 and more employees	
Sector	Number of firms	in %	Number of firms	in %[1]	Number of firms	in %[1]	Number of firms	in %[1]	Number of firms	in %[1]
Basic materials industry	14,790	100	9,080	61.4	4,686	31.7	886	6.0	138	0.9
Iron, steel and non-ferrous metals industry	2,044	100	977	47.8	851	41.6	186	9.1	30	1.5
Mechanical engineering, electrical and automobile industries	52,482	100	32,977	62.8	16,925	32.3	2,354	4.5	226	0.4
Processing industry	54,715	100	36,299	66.3	16,077	29.4	2,247	4.1	92	0.2
Mining	2,728	100	1,734	63.6	924	33.9	70	2.5	-	-
Food, beverages and tobacco industries	7,851	100	3,939	50.1	2,956	37.7	800	10.2	156	2.0
Total industry	134,610	100	85,006	63.1	42,419	31.5	6,543	4.9	642	0.5
Building and construction	80,827	100	65,395	80.9	14,276	17.7	1,091	1.3	65	0.1
Services	1,056,263	100	788,338	74.6	246,011	23.3	19,701	1.9	2,213	0.2
Total	1,271,700	100	938,739	73.8	302,706	23.8	27,335	2.2	2,920	0.2

[1] as a % of the total number of firms in each sector.

Table I.1.5. Comparison of export shares[1] of responding firms, and of the total economy and its sectors in the UK

Export shares Sectors	Export shares of responding firms in given sectors and for all responding firms, %	Sectoral export shares and the export share of the total economy according to official statistics, %
Raw materials	10.1	78.7
Iron, steel and non-ferrous metals	49.0	33.0
Mechanical engineering, electrical and automobile industries	32.0	57.0
Processing industry	29.0	24.2
Mining	29.1	19.8
Food, beverages and tobacco	20.0	0.3
Total industry	35.0	34.4
Building and construction	32.0	NA
Services	33.8	6.3
Total	34.9	NA

[1] Exports as a % of total turnover from domestic production.

Table I.2.1. Characteristics of responding firms in the UK (by firm size – number of employees)

Employees / Sector	All responding firms		Micro firms: up to 10 employees		Small firms: 10 to 99 employees		Medium size: 100 to 499 employees		Large firms: 500 and more employees	
	No. of firms	in %	No. of firms	in %[1]	No. of firms	in %[1]	No. of firms	in %[1]	No. of firms	in %[1]
Basic materials industry	36	100	10	27.8	10	27.8	13	36.1	3	8.3
Iron, steel and non-ferrous metals industry	16	100	1	6.3	7	43.7	6	37.5	2	12.5
Mechanical engineering, electrical and automobile industries	225	100	31	13.8	109	48.4	74	32.9	11	4.9
Processing industry	63	100	2	3.2	29	46.0	27	42.9	5	7.9
Mining	3	100	0	0	1	33.3	1	33.3	1	33.3
Food, beverages and tobacco industries	4	100	0	0	2	50.0	2	50.0	0	0
Total industry	347	100	44	12.7	158	45.5	123	35.5	22	6.3
Building and construction	5	100	0	0	3	60.0	2	40.0	0	0
Services	49	100	18	36.7	20	40.8	9	18.4	2	4.1
Total	401	100	62	15.5	181	45.1	134	33.4	24	6.0

[1] as a % of the total number of firms in each sector.

Table I.2.2.1. Characteristics of responding firms in the UK (by export share[1])

Export share / Sectors	All responding firms		up to 24%		25-49%		50-100%	
	Number of firms	in %	Number of firms	%[2]	Number of firms	%[2]	Number of firms	%[2]
Basic materials industry	26	100	11	42.3	3	11.5	12	46.2
Iron, steel and non-ferrous metals industry	11	100	4	36.4	4	36.4	3	27.2
Mechanical engineering, electrical and automobile industries	161	100	57	35.4	43	26.7	61	37.9
Processing industry	48	100	26	54.2	11	22.9	11	22.9
Mining	3	100	1	33.3	1	33.3	1	33.3
Food, beverages and tobacco industry	2	100	0	0	2	100	0	0
Total industry	251	100	99	39.4	64	25.5	88	35.1
Building and construction	3	100	1	33.3	2	66.7	0	0
Services	33	100	10	30.3	6	18.2	17	51.5
Total	287	100	110	38.3	72	25.1	105	36.6

[1] Exports as a % of total turnover from domestic production. [2] as a % of the number of responding firms in each sector. (Adds up to to 100% in each sector)

Table I.2.2.2. Characteristics of responding firms in the UK (by import share[1])

Import share / Sector	All responding firms		up to 24%		25-49%		50-100%	
	Number of firms	in %	Number of firms	%[2]	Number of firms	%[2]	Number of firms	%[2]
Basic materials industry	18	100	15	83.3	1	5.6	2	11.1
Iron, steel and non-ferrous metals industry	8	100	6	75.0	0	0	2	25.0
Mechanical engineering, electrical and automobile industries	119	100	93	78.2	15	12.6	11	9.2
Processing industry	34	100	24	70.6	6	17.6	4	11.8
Mining	1	100	1	100	0	0	0	0
Food, beverages and tobacco industry	3	100	1	33.3	0	0	2	66.7
Total industry	183	100	140	76.5	22	12.0	21	11.5
Building and construction	2	100	2	100	0	0	0	0
Services	20	100	11	55.0	6	30.0	3	15.0
Total	205	100	153	74.6	28	13.7	24	11.7

[1] Imports as a % of total turnover from domestic production. [2] as a % of the number of responding firms in each sector. (Adds up to 100% in each sector.)

Table I.2.3.1. Characteristics of responding firms in the UK (by production facilities abroad)

Regions / Sectors	Number of responding firms	Facilities in: ERM countries	Facilities in: EU /non-ERM-countries	Facilities in: the USA	Facilities: Elsewhere
		% of responding firms			
Basic materials industry	7	57.1	42.9	71.4	57.1
Iron, steel and non-ferrous metals industry	2	100	0	50.0	0
Mechanical engineering, electrical and automobile industries	41	46.3	24.4	53.7	36.6
Processing industry	11	72.8	36.4	45.5	36.4
Mining	1	100	100	100	0
Food, beverages and tobacco industry	0	0	0	0	0
Total industry	62	54.8	29.1	54.9	37.1
Building and construction	2	50.0	0	50.0	0
Services	4	50.0	0	50.0	0
Total	68	54.4	26.5	54.4	33.8

Table II.1a. UK: distribution of exports and imports, 1994 (% of firms dealing with each area)

	Responding firms	
	Exports %	Imports %
EUR-12 total	73.5	48.2
Belgium/Luxembourg	18.6	4.9
France	27.5	15.9
Germany	27.8	29.3
Ireland	21.6	5.5
Italy	18.2	15.2
Netherlands	20.6	6.7
Spain	16.2	6.7
Other West European countries	24.7	15.2
USA	41.6	31.7
Japan	12.0	7.3
Rest of world	74.9	25.0

Table II.1b. UK: distribution of exports and imports, 1994 (direction of trade as % of total)

	Responding firms		According to official statistics	
	Exports %	Imports %	Exports %	Imports %
EUR-12 total	40.4	49.2	NA	NA
Other West European countries	3.8	7.9	NA	NA
USA	9.8	25.6	NA	NA
Japan	0.9	1.8	NA	NA
Rest of world	45.1	15.5	NA	NA

Table II.2a. UK: invoicing practices – exports

	Number of responding firms	% of responding firms invoice in:				
		Local currency		DM	US dollar	Others
		< 100%	100%			
Basic materials industry	33	48.5	36.4	24.3	42.4	27.3
Iron, steel and non-ferrous metals industry	15	73.3	13.3	53.3	66.7	40.0
Mechanical engineering, electrical and automobile industries	203	46.3	48.8	14.8	36.9	18.2
Processing industry	57	43.9	43.9	24.6	33.3	35.1
Mining	3	66.7	0	0	100	0
Food, beverages and tobacco industry	3	66.7	33.3	0	66.7	0
Total industry	314	47.8	44.3	19.1	39.2	22.9
Building and construction	4	50.0	25.0	0	25.0	50.0
Services	43	48.8	39.5	25.6	48.8	30.2
Total	361	47.9	43.5	19.7	40.2	24.1

Table II.2b. The UK: invoicing practices – imports

	Number of responding firms	% of responding firms invoice in:				
		Local currency		DM	US dollar	Others
		< 100%	100%			
Basic materials industry	15	26.7	33.3	26.7	46.7	26.7
Iron, steel and non-ferrous metals industry	5	20.0	20.0	40.0	40.0	40.0
Mechanical engineering, electrical and automobile industries	88	33.0	31.8	38.6	31.8	35.2
Processing industry	25	28.0	36.0	24.0	40.0	40.0
Mining	1	0	0	0	100	0
Food, beverages and tobacco industry	2	50.0	0	0	100	50.0
Total industry	136	30.9	31.6	33.8	36.8	35.3
Building and construction	2	0	50.0	0	0	50.0
Services	26	34.6	15.4	38.5	61.5	34.6
Total	164	31.1	29.3	34.2	40.2	35.4

Table II.3a. UK: production facilities abroad

	Number of responding firms	ERM countries %	EU non- ERM countries %	USA %	Other %
Basic materials industry	7	42.9	42.9	57.1	28.6
Iron, steel and non-ferrous metals industry	2	100	0	0	0
Mechanical engineering, electrical and automobile industries	41	41.5	22.0	51.2	29.3
Processing industry	11	63.6	36.4	36.4	27.3
Mining	1	100	100	100	0
Food, beverages and tobacco industry	0	0	0	0	0
Total industry	62	48.3	27.4	53.2	27.4
Building and construction	2	0	0	50.0	0
Services	4	50.0	0	50.0	0
Total	68	47.1	25.0	48.5	25.0

Table II.3b. UK: sales facilities abroad

	Number of responding firms	ERM countries %	EU non- ERM countries %	USA %	Others %
Basic materials industry	14	50.0	21.4	21.4	7.1
Iron, steel and non-ferrous metals industry	8	37.5	50.0	25.0	50.0
Mechanical engineering, electrical and automobile industries	85	40.0	27.1	42.4	25.9
Processing industry	19	47.4	42.1	26.3	21.1
Mining	3	66.7	66.7	33.3	0
Food, beverages and tobacco industry	0	0	0	0	0
Total industry	129	42.6	27.9	33.1	24.0
Building and construction	2	50.0	50.0	0	50.0
Services	11	36.4	45.5	36.4	54.5
Total	142	42.3	29.6	35.9	26.8

Table II.3c. UK: location of foreign exchange management and head office

	Number of responses	Location of foreign exchange management abroad		Head office located in:		
		Yes	No	Europe	USA	Japan
Basic materials industry	10	40.0	60.0	70.0	20.0	0
Iron, steel and non-ferrous metals industry	2	100	0	100	0	0
Mechanical engineering, electrical and automobile industries	41	73.2	26.8	58.5	29.3	0
Processing industry	13	46.2	53.8	92.3	7.7	0
Mining	2	100	0	50.0	50.0	0
Food, beverages and tobacco industry	1	0	100	100	0	0
Total industry	69	63.8	36.2	68.1	23.2	0
Building and construction	2	50.0	50.0	0	100	0
Services	5	60.0	40.0	80.0	20.0	0
Total	76	63.2	36.8	67.1	25.0	0

Table III.1a. Business strategies against exchange rate fluctuations in the UK (comparison of weighted and unweighted responses)

	No. of respond-ing firms	Increased domestic market orien-tation	Re-orient-ation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Re-orient-ation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important - as a % of total responses -						
All firms unweighted	279	9.0	11.1	7.9	3.9	48.0	36.9	48.4
Export weighted (responding firms)	279	7.1	15.6	7.0	5.0	61.1	37.9	41.7
Export weighted (official statistics)	279	9.2	11.2	7.6	4.6	48.1	35.8	47.7
Turnover weighted (responding firms)	279	7.3	14.1	7.6	4.7	58.5	38.5	42.0
Turnover weighted (official statistics)	279	8.5	11.1	4.0	7.1	45.8	25.3	44.4

Table III.1b. Business strategies against exchange rate fluctuations in the UK (results according to size of company)

Number of Employees	Number of respond-ing firms	Increased domestic market orient-ation	Re-orient-ation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Re-orient-ation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting productio n facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important - as a % of total responses -						
1-49	115	12.2	12.2	12.2	1.7	30.4	42.6	53.0
50-199	87	6.9	6.9	5.8	4.6	56.3	31.0	49.4
200-999	65	7.7	15.4	4.6	6.2	64.6	35.4	41.5
1,000 and above	12	0	8.3	0	8.3	66.7	33.3	33.3

Table III.1c. Business strategies against exchange rate fluctuations in the UK (results according to foreign trade involvement

	Number of responding firms	Increased domestic market orientation	Re-orientation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Re-orientation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important - as a % of total responses -						
Share of exports								
0-24%	75	13.3	14.7	13.3	5.3	48.0	44.0	45.3
25-49%	49	12.2	16.3	10.2	0	63.3	26.5	49.0
50-100%	75	8.0	9.3	5.3	4.0	60.0	40.0	37.3
Total	199	11.1	13.1	9.5	3.5	56.3	38.2	43.2
Share of imports								
0-24%	97	13.4	16.5	11.3	3.1	53.6	41.2	42.3
25-49%	22	9.1	18.2	27.3	4.5	59.1	45.5	40.9
50-100%	22	0	0	4.5	13.6	72.7	45.5	31.8
Total	141	10.6	14.2	12.8	5.0	57.5	42.6	40.4

Table III.1d. Business strategies against exchange rate fluctuations in the UK (results according to main sectors)

	Number of responding firms	Increased domestic market orientation	Re-orientation of exports to countries with more stable exchange rates *vis-à-vis* local currency	Re-orientation of imports from countries with more stable exchange rates *vis-à-vis* local currency	Shifting production facilities abroad	Financial hedging measures	In-house measures	Other strategies
		Statement that the strategy is important - as a % of total responses -						
Basic materials industry	23	13.0	17.4	17.4	8.7	52.2	47.8	39.1
Iron, steel and non-ferrous metals industry	13	7.7	23.1	7.7	7.7	69.2	38.5	38.5
Mechanical engineering, electrical and automobile industries	149	8.7	6.7	6.7	1.3	47.0	38.9	52.3
Processing industry	45	8.9	20.0	13.3	4.4	46.7	42.2	48.9
Mining	3	0	0	0	0	66.7	33.3	33.3
Food, beverages and tobacco industry	4	0	25.0	0	25.0	50.0	25.0	0
Total industry	237	8.9	11.4	8.9	3.4	49.0	40.1	48.5
Building and construction	4	0	0	0	0	75.0	0	25.0
Services	38	10.5	10.5	2.6	7.9	39.5	21.1	50.0
Total	279	9.0	11.1	7.9	3.9	48.0	36.9	48.4

Table III.2a. UK: importance of time period of exchange rate fluctuations and importance of different currencies (comparison of weighted and unweighted responses)

	No. of respond-ing firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day to day	month to month	quarter to quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...Others
		- as a % of total responses -				...are important - as a % of total responses -			
All firms unweighted	249	20.9	25.3	13.3	46.6	52.6	31.7	57.4	5.2
Export weighted (responding firms)	249	22.2	32.7	15.6	46.7	51.2	26.1	60.1	5.5
Export weighted (official statistics)	249	22.8	25.6	12.9	44.8	51.5	29.0	57.5	4.9
Turnover weighted (responding firms)	249	22.2	33.2	14.6	46.3	48.4	25.7	57.8	5.4
Turnover weighted (official statistics)	249	33.9	21.8	9.7	39.2	49.7	24.8	55.2	4.9

Table III.2b. UK: importance of time period of exchange rate fluctuations and importance of different currencies (according to size of company)

	No. of respond-ing firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day to day	month to month	quarter to quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...Others
		- as a % of total responses -				...are important - as a % of total responses -			
1-49	107	23.4	24.3	12.2	44.9	52.3	29.9	58.9	2.8
50-199	73	20.6	23.3	13.7	48.0	52.1	32.9	53.4	6.8
200-999	58	17.2	27.6	15.5	48.3	53.4	31.0	58.6	6.9
1,000 and above	11	18.2	45.5	9.1	45.5	54.5	45.5	63.6	9.1

Table III.2c. UK: importance of time period of exchange rate fluctuations and importance of different currencies (results according to foreign trade involvement)

	No. of respond-ing firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchang e rate changes				
		day to day	month to month	quarter to quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...Othe rs
		- as a % of total responses -				...are important - as a % of total responses -			
Share of exports									
0-24%	76	17.1	23.7	18.7	42.1	53.9	29.0	43.4	2.6
25-49%	45	28.9	26.7	11.1	44.4	55.6	42.2	64.4	4.4
50-100%	67	16.4	23.9	9.0	53.7	50.8	31.3	68.7	9.0
Total	188	19.7	24.5	13.3	46.8	53.2	33.0	57.5	5.3
Share of imports									
0-24%	94	16.0	20.2	14.9	51.1	47.9	28.7	56.4	7.5
25-49%	21	28.6	9.5	14.3	61.9	66.7	42.9	66.7	0
50-100%	22	45.5	31.8	9.1	45.5	77.3	50.0	68.2	9.1
Total	137	22.6	20.4	13.9	51.8	55.5	34.3	59.9	6.6

Table III.2d. UK: importance of time period of exchange rate fluctuations and importance of different currencies (results according to main sector)

	No. of respond-ing firms	Business strategies prompted by...				The fluctuations of local currency against...			
		...short-term exchange rate fluctuations			...long-term exchange rate changes				
		day to day	month to month	quarter to quarter		...ERM currencies	...EU non-ERM currencies	...US dollar	...Others
		- as a % of total responses -				...are important - as a % of total responses -			
Basic materials industry	21	19.0	23.8	19.0	52.4	57.1	33.3	57.1	9.5
Iron, steel and non-ferrous metals industry	14	21.4	28.6	21.4	50.0	64.3	28.6	71.4	7.1
Mechanical engineering, electrical and automobile industries	133	16.5	28.6	11.3	48.1	50.4	35.3	60.2	3.0
Processing industry	40	17.5	17.5	20.0	47.5	60.0	30.0	47.5	10.0
Mining	3	33.3	66.7	0	33.3	0	0	33.3	0
Food, beverages and tobacco industry	4	50.0	25.0	0	50.0	25.0	25.0	25.0	25.0
Total industry	215	18.1	26.5	14.0	48.4	52.6	33.0	57.2	5.6
Building and construction	3	66.7	33.3	0	33.3	33.3	33.3	33.3	0
Services	31	35.5	16.1	9.7	35.5	54.8	22.6	61.3	3.2
Total	249	20.9	25.3	13.3	46.6	52.6	31.7	57.4	5.2

Table IV.1a. UK: volume of financial hedging of foreign exchange denominated assets/liabilities (comparison of weighted and unweighted responses)

	Number of respond-ing firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100%
		- as a % of total responses -								
All firms unweighted	67	13.4	19.4	28.4	7.5	1.5	10.4	14.9	11.9	41.8
Export weighted (responding firms)	67	5.7	15.2	35.0	11.0	0.7	20.2	13.3	20.3	45.6
Export weighted (official statistics)	67	13.2	21.4	27.3	7.4	1.2	8.7	16.2	12.2	41.3
Turnover weighted (responding firms)	67	7.4	15.8	32.2	9.0	0.7	17.0	13.5	15.9	47.5
Turnover weighted (official statistics)	67	10.3	24.7	21.1	9.0	0.3	3.5	16.5	16.4	39.5

Table IV.1b. UK: volume of financial hedging of foreign exchange denominated assets/liabilities (results according to size of company)

	Number of responding firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		- as a % of total responses -								
1-49	22	13.6	22.7	18.2	9.1	0	0	18.2	18.2	27.3
50-199	22	4.5	13.6	31.8	4.5	0	18.2	22.7	9.1	45.5
200-999	18	16.7	27.8	33.3	11.1	5.6	5.6	5.6	11.1	38.9
1,000 and above	5	40.0	0	40.0	0	0	40.0	0	0	100

Table IV.1c. UK: volume of financial hedging of foreign exchange denominated assets/liabilities (results according to foreign trade involvement)

	Number of respond-ing firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		- as a % of total responses -								
Share of exports										
0-24%	20	0	20.0	45.0	5.0	0	20.0	10.0	5.0	50.0
25-49%	19	15.8	26.3	21.1	10.5	0	5.3	10.5	26.3	31.6
50-100%	25	24.0	12.0	24.0	8.0	4.0	8.0	24.0	0	44. 0
Total	64	14.1	18.8	29.7	7.8	1.6	10.9	15.6	9.4	42.2
Share of imports										
0-24%	31	9.7	22.6	16.1	6.5	3.2	9.7	12.9	6.5	61.3
25-49%	9	11.1	44.4	11.1	11.1	0	0	44.4	22.2	11.1
50-100%	9	22.2	11.1	55.6	22.2	0	11.1	22.2	11.1	33.3
Total	49	12.2	24.5	22.5	10.2	2.0	8.2	20.4	10.2	46.9

Table IV.1d. UK: volume of financial hedging of foreign exchange denominated assets/liabilities (results according to main sectors)

	Number of respond-ing firms	Foreign currency assets/liabilities were hedged *vis-à-vis*...								
		...ERM currencies			...EU non-ERM currencies			...non-EU currencies		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		- as a % of total responses -								
Basic materials industry	7	14.3	28.6	42.9	0	0	14.3	28.6	0	28.6
Iron, steel and non-ferrous metals industry	6	0	16.7	50.0	16.7	0	33.3	16.7	33.3	33.3
Mechanical engineering, electrical and automobile industries	32	15.6	12.5	21.9	3.1	3.1	6.3	12.5	6.3	43.8
Processing industry	10	20.0	30.0	40.0	20	0	20	10.0	20.0	40.0
Mining	1	0	0	0	0	0	0	0	0	100
Food, beverages and tobacco industry	0	0	0	0	0	0	0	0	0	0
Total industry	56	14.3	17.9	30.4	7.1	1.8	12.5	14.3	10.7	44.6
Building and construction	2	0	0	0	0	0	0	0	0	100
Services	9	11.1	33.3	22.2	11.1	0	0	22.2	22.2	33.3
Total	67	13.4	19.4	28.4	7.5	1.5	10.4	14.9	11.9	41.8

Table IV.2a. UK: kinds of financial hedging against exchange rate fluctuations (comparison of wighted and unweighted responses)

	Number of responding firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	6 7 to 100 %
		- as a % of total responses -														
All firms unweighted	134	3.0	6.0	78.4	3.0	0.8	0	1.5	0	1.5	1.5	2.2	5.2	3.0	2.2	3.7
Export weighted (responding firms)	134	1.0	8.2	86.4	1.0	6.3	0	0.6	0	0.6	0.7	0.7	2.2	1.2	0.3	1.0
Export weighted (official statistics)	134	3.2	6.2	77.4	3.3	0.7	0	1.1	0	1.7	1.1	2.7	4.0	2.8	3.8	4.8
Turnover weighted (responding firms)	134	1.3	7.3	85.4	1.2	4.5	0	0.7	0	1.2	0.8	0.9	2.6	2.1	0.6	1.5
Turnover weighted (official statistics)	134	1.0	1.9	93.7	0.8	0.4	0	0.4	0	0.5	0.6	0.6	1.6	0.9	0.2	1.1

Table IV.2b. UK: kinds of financial hedging against exchange rate fluctuations (results according to size of company)

	Number of responding firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		- as a % of total responses -														
1-49	40	7.5	5.0	70.0	5.0	0	0	5.0	0	2.5	0	2.5	2.5	0	5.0	5.0
50-199	47	2.1	10.6	76.6	0	2.1	0	0	0	2.1	2.1	2.1	2.1	2.1	2.1	6.4
200-999	39	0	2.6	84.6	2.6	0	0	0	0	0	2.6	2.6	12.8	2.6	0	0
1,000 and above	8	0	0	100	12.5	0	0	0	0	0	0	0	0	25	0	0

Table IV.2c. UK: kinds of financial hedging against exchange rate fluctuations (results according to foreign trade involvement)

	Number of responding firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %
		- as a % of total responses -														
Share of exports																
0-24%	41	4.9	2.4	70.7	2.4	0	0	2.4	0	2.4	0	0	9.8	0	0	9.8
25-49%	29	0	6.9	89.7	3.5	3.5	0	3.5	0	0	3.5	0	0	0	0	0
50-100%	44	2.3	9.1	77.3	2.3	0	0	0	0	2.3	0	4.5	2.3	6.8	6.8	2.3
Total	114	2.6	6.1	78.1	2.6	0.9	0	1.8	0	1.8	0.9	1.8	4.4	2.6	2.6	4.4
Share of imports																
0-24%	55	5.5	1.8	83.6	3.6	1.8	0	1.8	0	1.8	0	0	3.6	0	0	3.6
25-49%	12	0	16.6	75.0	0	0	0	0	0	0	0	0	0	8.3	8.3	0
50-100%	14	0	7.1	85.7	7.1	0	0	0	0	0	0	7.1	0	7.1	7.1	0
Total	81	3.7	4.9	82.7	3.7	1.2	0	1.2	0	1.2	0	1.2	2.5	2.5	2.5	2.5

Table IV.2d. UK: kinds of financial hedging against exchange rate fluctuations (results according to main sectors)

	No. of resp. firms	Exchange rate risks were hedged by...														
		... forward exchange transactions			... discounting of foreign exchange bills			... factoring			...exchange rate insurance			...others		
		to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 100 %	to 33 %	34 to 66 %	67 to 10 0 %	to 33 %	34 to 66 %	67 to 100 %
		- as a % of total responses -														
Basic materials industry	12	0	8.3	83.3	0	0	0	0	0	8.3	0	0	0	8.3	0	0
Iron, steel and non-ferrous metals industry	8	0	12.5	87.5	0	12.5	0	0	0	0	0	0	0	0	0	0
Mechanical engineering, electrical and automobile industries	68	1.5	5.9	77.9	2.9	0	0	2.9	0	1.5	1.5	1.5	8.9	4.4	1.5	0
Processing industry	25	8.0	4.5	76.0	4.0	0	0	0	0	0	4.0	4.0	4.0	0	0	12
Mining	2	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
Food, beverages and tobacco industry	1	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
Total industry	116	2.6	6.0	79.3	2.6	0.9	0	1.7	0	1.7	1.7	1.7	6.0	3.5	0.9	2.6
Building and construction	3	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
Services	15	6.7	6.7	66.7	6.7	0	0	0	0	0	0	6.7	0	0	13.3	13.3
Total	134	3.0	6.0	78.4	3.0	0.8	0	1.5	0	1.5	1.5	2.2	5.2	3.0	2.2	3.7

Table IV.3a. UK: reasons for different forms of financial hedging (comparison of weighted and unweighted responses)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important - as a % of total responses -				
All firms unweighted	99	71.7	37.4	18.2	33.3	25.3
Export weighted (responding firms)	99	43.6	30.4	44.5	19.9	25.6
Export weighted (official statistics)	99	71.5	34.6	21.6	34.4	20.5
Turnover weighted (responding firms)	99	48.9	32.2	41.2	23.3	23.0
Turnover weighted (official statistics)	99	81.3	12.5	9.9	9.8	13.5

Table IV.3b. UK: reasons for different forms of financial hedging (results according to size of company)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important - as a % of total responses -				
1-49	31	83.8	41.9	22.6	32.3	3.2
50-199	34	64.7	26.5	11.8	35.3	35.3
200-999	26	57.7	42.3	19.2	23.1	38.5
1,000 and above	8	100	50.0	25.0	62.5	25.0

Table IV.3c. UK: reasons for different forms of financial hedging(results according to foreign trade involvement)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important - as a % of total responses -				
Share of exports						
0-24%	33	72.7	42.4	18.2	36.4	24.3
25-49%	23	56.5	43.5	17.4	21.7	30.4
50-100%	34	85.3	35.3	23.5	38.2	17.7
Total	90	73.3	40.0	20.0	33.3	23.3
Share of imports						
0-24%	47	59.6	34.7	19.2	31.9	29.8
25-49%	12	100	33.3	16.7	25.0	0
50-100%	10	60.0	60.0	20.0	30.0	50.0
Total	69	66.7	39.1	18.8	30.4	27.5

Table IV.3d. UK: reasons for different forms of financial hedging (results according to main sectors)

	Number of responding firms	Cost	Payment period of accounts in foreign currencies	Technical handling	Flexibility of instrument	Others
		Statement that the strategy is important - as a % of total responses -				
Basic materials industry	8	100	62.5	0	50.0	12.5
Iron, steel and non-ferrous metals industry	6	33.3	33.3	50.0	16.7	33.3
Mechanical engineering, electrical and automobile industries	52	71.2	34.6	15.4	34.6	30.8
Processing industry	20	75.0	50.0	20.0	30.0	20.0
Mining	1	0	0	100	0	0
Food, beverages and tobacco industry	1	0	0	0	0	100
Total industry	88	70.5	39.8	18.2	33.0	27.3
Building and construction	1	100	0	0	0	0
Services	10	80.0	20.0	20.0	40.0	10.0
Total	99	71.7	37.4	18.2	33.3	25.3

Table IV.4a. UK: other measures (business-internal measures) against exchange rate risks (comparison of weighted and unweighted responses)

	Number of respond-ing firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another inter-national currency	Increasing staff involved in risk manage-ment	Others
		- answering 'yes' as a % of total responses -							
All firms unweighted	138	23.2	47.1	49.3	42.0	2.9	28.3	9.4	6.5
Export weighted (responding firms)	138	33.2	63.8	42.5	46.0	1.0	40.5	11.6	2.6
Export weighted (official statistics)	138	19.9	51.9	46.4	43.0	1.6	32.6	8.8	4.9
Turnover weighted (responding firms)	138	30.4	63.2	42.3	48.8	1.9	41.6	10.0	3.4
Turnover weighted (official statistics)	138	7.0	45.4	42.7	37.4	3.5	33.4	7.1	1.8

Table IV.4b. UK: other measures (business-internal measures) against exchange rate risks (results according to size of company)

	Number of respond-ing firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another inter-national currency	In-creasing staff involved in risk manage-ment	Others
		- answering 'yes' as a % of total responses -							
1-49	63	15.9	50.8	55.6	38.1	1.6	34.9	1.6	7.9
50-199	41	19.5	53.7	48.8	41.5	2.4	19.5	14.6	4.9
200-999	29	37.9	34.5	34.5	48.3	6.9	24.1	3.4	3.4
1,000 and above	5	60.0	20.0	60.0	60.0	0	40.0	0	20.0

Table IV.4c. UK: other measures (business-internal measures) against exchange rate risks (results according to foreign trade involvement)

	Number of respond-ing firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another inter-national currency	Increasing staff involved in risk manage-ment	Others
		- answering 'yes' as a % of total responses -							
Share of exports									
0-24%	48	27.1	37.5	62.5	33.3	0	22.9	10.4	6.3
25-49%	22	22.7	45.5	68.2	40.9	9.1	31.8	0	9.1
50-100%	38	28.9	50.0	36.8	47.4	0	10.5	13.2	2.6
Total	108	26.9	43.5	54.6	39.8	1.9	20.4	9.3	5.6
Share of imports									
0-24%	55	23.6	45.5	63.6	34.6	0	21.8	18.2	5.5
25-49%	12	50.0	25.0	16.7	66.7	0	41.7	8.3	8.3
50-100%	11	27.3	54.6	18.2	45.5	0	45.5	0	9.1
Total	78	28.2	43.6	50.0	41.0	0	28.2	14.1	6.4

Table IV.4d. UK: other measures (business-internal measures) against exchange rate risks (results according to main sectors)

	Number of respond-ing firms	Netting of foreign currency assets and liabilities	Changing terms of payments	Pricing policy	Increased invoicing in local currency	Increased invoicing in ECU	Increased invoicing in another inter-national currency	Increasing staff involved in risk manage-ment	Others
		- answering 'yes' as a % of total responses -							
Basic materials industry	15	46.7	60.0	66.7	40.0	0	26.7	6.7	6.7
Iron, steel and non-ferrous metals industry	6	50.0	66.7	50.0	33.3	0	33.3	16.7	0
Mechanical engineering, electrical and automobile industries	77	18.2	46.8	49.4	41.6	2.6	28.6	11.7	6.5
Processing industry	25	32.0	36.0	44.0	48.0	4.0	20.0	4.0	12.0
Mining	1	0	100	0	100	0	100	0	0
Food, beverages and tobacco industry	2	0	0	100	50.0	50.0	50.0	0	0
Total industry	126	25.4	46.8	50.0	42.9	3.2	27.8	9.5	7.1
Building and construction	0	0	0	0	0	0	0	0	0
Services	12	0	50.0	41.7	33.3	0	33.3	8.3	0
Total	138	23.2	47.1	49.3	42.0	2.9	28.3	9.4	6.5

Table V.1a. The UK: banks' commissions and other processing fees for the exchange of currencies (comparison of weighted and unweighted responses)

	No. of resp. firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions	Since the late 1980s these costs have...		
		<0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	- answering 'yes' as a % of total responses -	... not changed	...in-creased	...de-creased
		- as a % of total responses -						- as a % of total responses -		
All firms unweighted	217	57.1	16.6	11.5	5.1	1.4	33.2	41.5	26.7	9.7
Export weighted (responding firms)	217	74.3	6.5	14.2	1.6	0.5	34.5	39.9	38.7	3.5
Export weighted (official statistics)	217	60.1	15.6	10.3	5.8	1.0	32.9	39.4	29.1	9.4
Turnover weighted (responding firms)	217	72.5	9.1	11.5	1.8	0.6	36.0	36.4	41.0	4.6
Turnover weighted (official statistics)	217	60.5	11.1	7.5	11.6	0.3	22.0	42.9	23.9	8.8

Table V.1b. UK: banks' commissions and other processing fees for the exchange of currencies (results according to size of company)

	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions - answering 'yes' as a % of total responses -	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%		... not changed	...in-creased	...de-creased
		- as a % of total responses -						- as a % of total responses -		
1-49	105	51.4	18.1	10.5	8.6	1.9	31.4	40.0	27.6	10.5
50-199	62	58.1	12.9	17.7	3.2	0	35.5	38.7	22.6	9.7
200-999	40	62.5	20.0	7.5	0	2.5	40.0	50.0	30.0	10.0
1,000 and above	10	90.0	10.0	0	0	0	10.0	40.0	30. 0	0

Table V.1c. UK: banks' commissions and other processing fees for the exchange of currencies (results according to foreign trade involvement)

	No. of respond-ing firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions - answering 'yes' as a % of total responses -	Since the late 1980s these costs have...		
		<0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%		... not changed	...in-creased	...de-creased
		- as a % of total responses -						- as a % of total responses -		
Share of exports										
0-24%	68	50.0	13.2	17.6	7.4	0	31.0	36.8	29.4	14.7
25-49%	44	45.5	18.2	13.6	4.6	2.3	22.7	47.7	22.7	6.8
50-100%	63	66.7	20.6	7.9	3.2	0	36.5	42.9	30.2	6.3
Total	175	54.9	17.1	13.1	5.1	0.6	33.7	41.7	28.0	9.7
Share of imports										
0-24%	95	51.6	17.9	15.8	4.2	1.1	30.5	43.2	28.4	8.4
25-49%	17	52.9	23.5	17.6	5.9	0	23.5	52.9	29.4	11.8
50-100%	15	11.0	13.3	13.3	6.7	0	33.3	66.7	6.7	6.7
Total	127	52.8	18.1	15.7	4.7	0.8	29.9	47.2	26.0	8.7

Table V.1d. UK: banks' commissions and other processing fees for the exchange of currencies (results according to main sectors)

	No. of responding firms	Banks' commissions and other processing fees amount to...					These costs are less expensive for intra-EU transactions - answering 'yes' as a % of total responses -	Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	> 4%		... not changed	...increased	...decreased
		- as a % of total responses -						- as a % of total responses -		
Basic materials industry	20	60.0	25.0	5.0	0	0	40.0	25.0	35.0	10.0
Iron, steel and non-ferrous metals industry	10	80.0	0	20.0	0	0	30.0	50.0	30.0	0
Mechanical engineering, electrical and automobile industries	117	52.1	17.9	14.5	3.4	2.6	37.6	41.0	27.4	12.8
Processing industry	35	62.9	20.0	8.6	5.7	0	31.4	48.6	22.9	2.9
Mining	2	100	0	0	0	0	50.0	0	100	0
Food, beverages and tobacco industry	3	100	0	0	0	0	0	33.3	66.7	0
Total industry	187	57.8	17.6	12.3	3.2	1.6	35.8	40.6	28.9	9.6
Building and construction	4	25.0	0	0	25.0	0	0	50.0	0	0
Services	26	57.7	11.5	7.7	15.4	0	19.2	46.2	15.4	11.5
Total	217	57.1	16.6	11.5	5.1	1.4	33.2	41.5	26.7	9.7

Table V.2a. UK: costs for personnel and equipment for administering foreign currency transactions (comparison of weighted and unweighted responses)

	No. of responding firms	There is specific staff for administering foreign currency transactions - answering 'yes' as a % of total responses -	Annual costs for staff and equipment (as a % of firms foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...increased	...decreased
			- as a % of total responses -					- as a % of total responses -		
All firms unweighted	182	56.7	65.4	7.7	5.5	3.3	1.7	56.0	17. 0	2.9
Export weighted (responding firms)	182	70.2	81.0	2.4	9.0	1.2	0.7	82.9	6.4	0.7
Export weighted (official statistics)	182	58.9	63.4	9.6	5.5	3.0	1.1	56.3	15.8	2.4
Turnover weighted (responding firms)	182	69.2	79.6	3.2	7.7	1.3	0.8	75.9	8.9	1.9
Turnover weighted (official statistics)	182	54.4	52.0	14.8	4.0	3.4	0.6	65.0	12.2	0.5

Table V.2b. UK: costs for personnel and equipment for administering foreign currency transactions (results according to size of company)

	No. of responding firms	There is specific staff for administering foreign currency transactions - answering 'yes' as a % of total responses-	Annual costs for staff and equipment (as a % of firms foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...increased	...decreased
			- as a % of total responses -					- as a % of total responses -		
1-49	83	47.0	62.7	10.8	4.8	3.6	3.6	50.6	20.5	1.2
50-199	49	53.1	61.2	8.2	8.2	4.1	0	55.1	14.3	2.0
200-999	39	71.8	74.4	2.6	5.1	0	0	71.8	15.4	2.6
1,000 and above	11	90.9	72.7	0	0	9.1	0	45.5	9.1	0

Table V.2c. UK: costs for personnel and equipment for administering foreign currency transactions (results according to foreign trade involvement)

	No. of responding firms	There is specific staff for administering foreign currency transactions - answering 'yes' as a % of total responses -	Annual costs for staff and equipment (as a % of firms foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...in-creased	...de-creased
			- as a % of total responses -					- as a % of total responses -		
Share of exports										
0-24%	54	50.0	68.5	5.6	7.4	5.6	1.9	46.3	24.1	3.7
25-49%	37	54.1	56.8	9.5	8.1	5.4	0	64.9	16.2	0
50-100%	54	61.1	72.2	11.1	1.9	0	1.9	64.8	16.7	1.9
Total	145	55.2	66.9	9.0	5.5	3.4	1.4	57.9	19.3	2.1
Share of imports										
0-24%	80	52.5	66.3	8.8	8.8	5.0	3.8	56.3	18.8	2.5
25-49%	20	65.0	45.0	15.0	10.0	0	0	40.0	20.0	0
50-100%	12	66.7	83.3	8.3	0	0	0	83.3	8.3	0
Total	112	56.3	64.3	9.8	8.0	3.6	2.7	56.3	17.9	1.8

Table V.2d. UK: costs for personnel and equipment for administering foreign currency transactions (results according to main sectors)

	No. of respond-ing firms	There is specific staff for administering foreign currency transactions - answering 'yes' as a % of total responses -	Annual costs for staff and equipment (as a % of firms foreign trade)					Since the late 1980s these costs have...		
			< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not change d	...in-crease d	...de-creased
			- as a % of total responses -					- as a % of total responses -		
Basic materials industry	13	53.8	69.2	7.7	7.7	0	0	30.8	23.1	15.4
Iron, steel and non-ferrous metals industry	7	71.4	85.7	0	14.3	0	0	100	0	0
Mechanical engineering, electrical and automobile industries	102	52.0	66.7	6.9	6.9	3.9	1.0	50.0	18.6	1.0
Processing industry	34	70.6	73.5	2.9	0	2.9	5.9	58.8	17.6	0
Mining	1	100	100	0	0	0	0	100	0	0
Food, beverages and tobacco industry	1	0	100	0	0	0	0	100	0	0
Total industry	158	57.0	69.6	5.7	5.7	3.2	1.9	55.1	17.7	1.9
Building and construction	2	50. 0	50.0	0	0	0	0	100	0	0
Services	22	54.5	36.4	22.7	4.5	4.5	0	59.1	13.6	0
Total	182	56.7	65.4	7.7	5.5	3.3	1.7	56.0	17. 0	2.9

Table V.3a. Hedging costs in the UK (comparison of weighted and unweighted responses)

	No. of responding firms	Annual costs for hedging various currencies (as a % of firms foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...in-creased	...decreased
		- as a % of total responses -					- as a % of total responses -		
All firms unweighted	126	80.2	7.1	3.2	2.4	1.6	71.4	15.9	3.2
Export weighted (responding firms)	126	92.3	2.7	1.3	0.8	0.7	88.9	6.6	1.4
Export weighted (official statistics)	126	79.1	9.7	2.2	3.0	1.1	68.1	14.2	4.4
Turnover weighted (responding firms)	126	88.5	4.9	1.4	0.9	0.8	83.0	10.2	3.4
Turnover weighted (official statistics)	126	81.0	11.2	0.8	5.1	0.5	69.9	4.6	0.9

Table V.3b. Hedging costs in the UK (results according to size of company)

	No. of responding firms	Annual costs for hedging various currencies (as a % of firms foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...in-creased	...decreased
		- as a % of total responses -					- as a % of total responses -		
1-49	50	68.0	12.0	2.0	4.0	4.0	54.0	24.0	4.0
50-199	38	86.8	2.6	5.3	2.6	0	84.2	10.5	3.2
200-999	31	87.1	6.5	3.2	0	0	83.9	9.7	3.2
1,000 and above	7	100	0	0	0	0	71.4	14.3	0

Table V.3c. Hedging costs in the UK (results according to foreign trade involvement)

	No. of responding firms	Annual costs for hedging various currencies (as a % of firms foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...in-creased	...decreased
		- as a % of total responses -					- as a % of total responses -		
Share of exports									
0-24%	39	71.8	2.6	7.7	5.1	2.6	64.1	20.5	7.7
25-49%	25	76.0	12.0	0	4.0	0	84.0	16.0	0
50-100%	42	88.1	7.1	0	0	2.4	73.8	14.3	2.4
Total	106	79.3	6.6	2.8	2.8	1.9	72.6	17.0	3.8
Share of imports									
0-24%	64	75.0	9.4	3.1	1.6	3.1	65.6	18.8	3.1
25-49%	10	70. 0	10. 0	10. 0	0	0	70. 0	10. 0	10. 0
50-100%	10	10. 0	0	0	0	0	100	0	0
Total	84	77.4	8.3	3.6	1.2	2.4	70.2	15.5	3.6

Table V.3d. Hedging costs in the UK (results according to main sectors)

	No. of respond-ing firms	Annual costs for hedging various currencies (as a % of firms foreign trade)...					Since the late 1980s these costs have...		
		< 0.5%	0.5 to 1%	1 to 2%	2 to 4%	>4%	... not changed	...in-creased	...decreased
		- as a % of total responses -					- as a % of total responses -		
Basic materials industry	8	62.5	25.0	0	0	0	37.5	37.5	25.0
Iron, steel and non-ferrous metals industry	6	100	0	0	0	0	100	0	0
Mechanical engineering, electrical and automobile industries	68	82.4	2.9	4.4	1.5	1.5	73.5	16.2	2.9
Processing industry	25	72.0	12.0	4.0	4.0	4.0	68.0	24.0	0
Mining	2	100	0	0	0	0	100	0	0
Food, beverages and tobacco industry	2	100	0	0	0	0	100	0	0
Total industry	111	80.2	6.3	3.6	1.8	1.8	72.1	18.0	3.6
Building and construction	2	100	0	0	0	0	100	0	0
Services	13	76.9	15.4	0	7.7	0	61.5	0	0
Total	126	80.2	7.1	3.2	2.4	1.6	71.4	15.9	3.2

Table V.4a. UK: costs induced by prolonged time period for money transfers (comparison of weighted and unweighted responses)

	No. of respond-ing firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have...					
				for EU currencies...			...for non-EU currencies...		
				... not changed	... in-creased	... de-creased	... not changed	... in-creased	...de-creased
				- as a % of total responses -					
All firms unweighted	212	3.6	4.2	57.5	7.1	2.4	59.0	7.1	14.6
Export weighted (responding firms)	212	3.9	4.2	62.3	2.9	24.2	67.3	2.4	18.6
Export weighted (official statistics)	212	3.5	4.3	58.8	5.9	17.7	59.2	6.8	14.5
Turnover weighted (responding firms)	212	3.6	4.0	63.4	3.3	21.3	67.4	2.7	16.8
Turnover weighted (official statistics)	212	3.1	4.6	59.5	4.2	20.7	50.9	8.5	16.5

Table V.4b. UK: costs induced by prolonged time period for money transfers (results according to size of company)

	No. of responding firms	Average additional time period (in days) for bank transfers between a EU currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have...					
				for EU currencies...			...for non-EU currencies...		
				... not changed	... increased	... decreased	... not changed	... increased	...decreased
				- as a % of total responses -					
1-49	101	4.2	4.8	45.5	10.9	18.8	50.5	10.9	13.9
50-199	59	2.9	4.0	66.1	1.7	20.3	66.1	1.7	18.6
200-999	42	3.5	3.5	71.4	7.1	14.3	64.3	7.1	11.9
1,000 and above	10	2.9	3.1	70.0	0	20.0	80.0	0	10.0

Table V.4c. UK: costs induced by prolonged time period for money transfers (results according to foreign trade involvement)

	No. of responding firms	Average additional time period (in days) for bank transfers between a EU-currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU-currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have...					
				for EU currencies...			...for non-EU currencies...		
				... not changed	... increased	... decreased	... not changed	... increased	...decreased
				- as a % of total responses -					
Share of exports									
0-24%	65	4.2	4.4	56.9	4.6	21.5	60.0	6.2	12.3
25-49%	41	4.0	5.0	58.5	12.2	14.6	53.7	12.2	9.8
50-100%	62	2.9	3.2	53.2	6.4	21.0	58.1	6.5	21.0
Total	168	3.7	4.1	55.9	7.1	19.6	57.7	7.7	14.9
Share of imports									
0-24%	93	4.0	4.3	50.5	9.7	15.1	54.8	10.8	12.9
25-49%	20	3.3	5.0	65.0	0	30.0	70.0	0	20.0
50-100%	16	3.0	4.1	75.0	6.3	18.7	68.8	6.2	25.0
Total	129	3.8	4.4	55.8	7.8	17.8	58.9	8.5	15.5

Table V.4d. UK: costs induced by prolonged time period for money transfers (results according to main sectors)

	No. of responding firms	Average additional time period (in days) for bank transfers between a EU-currency and the local currency compared to transfers in local currency	Average additional time period (in days) for bank transfers between a non-EU-currency and the local currency compared to transfers in local currency	Since the late 1980s these costs have...					
				for EU currencies...			...for non-EU currencies...		
				... not changed	... increased	... decreased	... not changed	... increased	...decreased
				- as a % of total responses -					
Basic materials industry	19	3.9	2.9	47.4	0	21.1	52.6	0	21.1
Iron, steel and non-ferrous metals industry	11	5.2	4.8	54.5	0	36.4	63.6	0	27.3
Mechanical engineering, electrical and automobile industries	115	3.5	4.3	55.7	9.6	15.7	60.0	7.8	11.3
Processing industry	32	4.4	4.6	68.8	9.4	15.6	65.6	6.3	15.6
Mining	2	-	2.0	100	0	0	100	0	0
Food, beverages and tobacco industry	3	2.5	4.0	66.7	0	33.3	33.3	0	33.3
Building and construction	5	2.0	1.7	60.0	0	40.0	20.0	0	20.0
Services	25	3.1	5.2	56.0	4.0	20.0	48.0	12.0	16.0
Total	212	3.6	4.2	57.5	7.1	2.4	59.0	7.1	14.6

Notes to aid interpretation of tables

Data sources

The official statistics included are taken from a variety of sources, complicating any attempt at comprehensive analysis. This is due to the nature of official statistics available in the UK. In each case the most recent statistics have been used.

Value of exports

There is no single source which provides details of exports for both the industrial sector and the service sector in the UK. It has been necessary to construct this information from two separate sources. Care should therefore be used in interpretation and aggregate totals avoided.

Export statistics for UK industry have been gathered from the Overseas Trade statistics of the UK with the World – table NM20A 'Total Value of Exports and Dispatches' – published by the CSO. These are based on the Standard Industrial Trade Classification (SITC).

Export statistics for the service sector have been taken from the Pink Book – UK Balance of Payments (1995) *Total Service Industry Credits.*

Value of output

Again, two sources had to be used in order to calculate turnover from domestic production of both the UK service sector and the industrial sector.

Service sector has used turnover data from SDQII – *The UK Service Sector Quarter 3* (1995) – published by the CSO. These only include businesses large enough to be registered for VAT.

Industrial sector has used gross output data from Business Monitor PA1002 Report on the Census of Production Summary Volume 1992 which uses industrial grouping based on the 1980 Standard Industrial Classification (SIC).

Comparison between tables

In 1992 SIC and SITC definitions were amended. This has made them comparable with the NACE classification system. Unfortunately the most recent available information on industrial output in the UK is the 1992 Census of Production, which still uses industrial sectors based on the 1980 SIC codes. SIC codes for 1980 are not comparable with the SITC codes nor with the NACE system. We have been unable to arrive at a method which will enable a robust analysis of the sectoral export share according to official statistics (Table 1.1.5).

Sector coverage of the different classification systems

The study has been complicated by the need to relate SIC and SITC codes to the NACE specification system which has then had to be adapted to the analytical sectors provided for the study by the IFO Institute. The method of this process is set out below.

Classification of sectors

SIC used for employees by sector and turnover.

	IFO Sectors	**SIC 1980**			
1	Basic materials industry	25 (50%)	26 (50%)	48 (50%)	
2	Iron, steel and non-ferrous metals industry	22	31		
3	Mechanical engineering and automobile	32-37			
4	Processing	25 (50%)	26 (50%)	48 (50%)	43-47
5	Mining	111	13-14	21	23-24
6	Food, beverages and tobacco	41-42			
7	Building and construction	5			

8	Services	6-9				
	IFO Sectors	**SITC used for exports**				
1	Basic materials industry	51-56	59	62	66	
2	Iron, steel and non-ferrous metals industry	67-69				
3	Mechanical engineering and automobile	71-79	81	87-88		
4	Processing	57-58	61	63-65	82-85	89
5	Mining	32-33				
6	Food, beverages and tobacco	4				
7	Building and construction	–				
8	Services	–				

Classification systems

	IFO Sectors	**NACE 2 (or 3) digit**								
1	Basic materials industry	23	24	25.1	26					
2	Iron, steel and non-ferrous metals industry	27.1	27.3	27.4	27.5					
3	Mechanical engineering, electrical and automobile industry	27.2	28	29	30	31	32	33	34	35
4	Processing industry	17	18	19	20	21	22	25.2	36	
5	Mining	10	14							
6	Food, beverages and tobacco industry	15	16							
7	Building and construction	45								
8	Services	50	till	93						

Analysis of table V.1a and similar tables

A number of tables have been created by IFO through amalgamating more than one question from the Questionnaire (such as Table V.1a). Care is required in interpreting these as not all firms answered each question.

Consequently the percentages do not always add up to 100, as the tables do not consider the possibility of non-response.

Appendix VB: Case study reports

Case study A

General information

The firm, a manufacturer of precision instruments, had a turnover of some £2 million of which 63% came from exports in 1994. In the same year it imported around £300,000 worth of products. The company employs 60 workers.

The company has no production facilities or sales offices elsewhere in the world. Most of the company's imports are sourced from the EU, primarily Belgium/Luxembourg (79%), while exports are distributed evenly around the world. One-third of exports are shipped to the EU, a quarter to the USA and 40% to the rest of the world (excluding Japan).

Invoicing practices differ between imports and exports. Imports are invoiced entirely in the local currency while exports are invoiced in sterling, except for those to the USA, France and Italy, which are invoiced in the local currency. The company is happy to bear the risk of this practice, believing that the customer prefers to be invoiced in his own currency. They also feel that over the year the gains and losses experienced through exchange rate fluctuations balance themselves out.

Corporate strategies

The firm does not currently engage in any financial hedging measures, although at one time the Financial Manager reports that they 'dabbled briefly' with forward exchange transactions. This was curtailed as they felt that the gains in terms of reduced risk were not worth the extra effort required.

The company does, however, engage in in-house measures to attempt to alleviate some of the risk involved in foreign exchange transactions. This varies through changing the terms of payment, pricing policies and increased invoicing in local currencies. This strategy is largely prompted by longer-term fluctuations in exchange rates, particularly between sterling and the US dollar and Japanese yen, although quarter to quarter movements are also considered. There has been no real change in this strategy since the late 1980s.

The costs of foreign exchange management

The transaction costs to the firm of foreign exchange management are relatively low. Banks' commission and processing fees amount to less than 0.5% of the currency exchanged while personnel and administrative costs total between 0.5% and 1% of the volume of foreign trade. The company reports that these costs have not changed since the late 1980s. The company does not employ specific staff to administer foreign currency transactions, it is part of their general financial duties.

Differences for transactions within the EU and with countries outside the EU

The only significant difference reported regarded strategic responses to currency fluctuations. The company saw longer term fluctuations in the sterling/dollar and sterling/yen exchange rates as important in determining the business strategy pursued to minimize risks arising from

exchange rate movements but regarded all other movements as unimportant. In all other respects the company's experience is that the costs of foreign exchange transactions and currency transfer periods do not differ between EU countries and non-EU countries.

Effect of the single market and bank deregulation

The company did not report any noticeable difference in their foreign currency dealings since the advent of the single market or bank deregulation.

Case study B

General information

The company, a manufacturer of pewterwear, such as flasks and tankards, employed 50 staff in 1994. It had a turnover of £1.3 million in 1994 and exported products worth £0.5 million. Most of its products are sourced in the UK, goods valued at £25,000 were imported in 1994. This is a significant reduction on previous years when the company operated a sizeable import business due to a conscious business decision to reduce exposure to imports.

The company has no production facilities or sales offices elsewhere in the world.

The company exports to a wide range of countries. One-third of goods go to the EU, one-third to the USA, a tenth to Japan, a tenth to other Western European countries and a fifth to the rest of the world. Ninety percent of imports are sourced from the 'rest of the world', with the remaining 10% purchased evenly from France and Germany.

All imports are invoiced in US dollars except those from France and Germany which are invoiced in the domestic currency. All exports are invoiced in sterling.

Corporate strategies

Aside from the practice of invoicing all exports in sterling the company also hedges some 5% of its non-EU foreign currency liabilities, half through forward exchange transactions and half through the discounting of foreign currency bills. That it should take this trouble over what is a small amount of money is largely ingrained habit left over from when imports were a much larger factor in their business performance than is currently the case. A further business strategy – the re-orientation of imports away from countries with unstable exchange rates – also accounts for the reduction in company imports. In this respect the company reports that longer-term fluctuations in exchange rates between sterling and all other European currencies and the US dollar have been important factors in their decision to invoice primarily in sterling and secondly in US dollars. The company finds this a convenient strategy as it nullifies any risk to themselves. They have also found that customers are willing to accept the transfer of risk as they are familiar with sterling and regard it as a stable currency.

Costs of foreign exchange management

Actual costs of foreign exchange transactions are in the order of 1% to 2% both for banks' commissions and processing fees and for annual personnel and equipment costs. These costs are not reported to have changed since the late 1980s. The annual cost for hedging currencies is lower, reportedly less than 0.5%, and again this has not changed since the late 1980s.

Differences for transactions within the EU and with countries outside the EU

No differences are reported in costs or transfer times for transactions with EU countries as opposed to non-EU countries.

Effect of the single market and bank deregulation

The company did not report any noticeable difference in their foreign currency dealings since the advent of the single market or bank deregulation.

Case study C

General information

A manufacturer of aluminium scaffolds and ladders, the company had a turnover of £12 million in 1994, of which £2.5 million came from exports. It had no imports that year. The company employs 135 staff and has no production facilities or sales offices in countries outside of the UK.

Forty percent of the company's exports are sold in the EU, 10% in the rest of Western Europe and the remaining half to the rest of the world. It makes no sales to the USA or Japan.

Corporate strategy

The company invoices exclusively in sterling. As a consequence it undertakes no financial hedging measures nor does it employ other in-house measures to counter currency fluctuations.

The company reports that there has been some pressure from customers to invoice in their own local currency but it has resisted doing this as it feels – based upon experience at trade fairs – that it is common practice in its market area to invoice in sterling. The company has very recently invoiced a few contracts in US dollars as it now operates a joint business with a sister company in the USA.

Costs of foreign exchange management

Despite invoicing in sterling the company does incur some currency transaction costs. These occur for two reasons:

(a) Some, smaller, orders are paid for in local currency rather than sterling, at the sterling equivalent. The company accepts this and is willing to bear the bank costs of exchanging the currency to sterling, typically a 1% to 2% commission and processing fee.

(b) On larger contracts the sterling invoice is accepted by the customer and entered into their own books at the prevailing exchange rate, i.e. if exporting to Germany a bill for £25,000 at an exchange rate of DM 2.25 to the pound will be entered as DM 56,250. When the order comes to be paid the customer pays the company DM 56,250 converted back into sterling. The company is aware that it sometimes incurs losses on this practice if exchange rates move against it but is willing to bear this, particularly as movements often balance out over the longer term.

On the basis of the limited experience of the company the interviewee felt that bank costs for transactions within the EU were cheaper than those involving transactions elsewhere, and that these costs had decreased since the late 1980s. The company does not employ specific staff to administer foreign currency transactions but feels that its administration costs are around 0.5% to 1% of foreign trade volume. These costs are again lower than was the case in the late 1980s.

Effect of the single market and bank deregulation

The company did not report any noticeable difference in their foreign currency dealings since the advent of the single market or bank deregulation.

Case study D

General information

A manufacturer of car and tyre maintenance products, the company employed 182 staff in 1994. In that year it had a turnover of £9.7 million of which exports accounted for £0.9 million. In 1994 the company imported products valued at £1.6 million. The company has no production facilities or sales offices outside of the UK.

Most of the company's trade is with other countries in the EU, accounting for 85% of exports and 98% of imports. Most imports come from Italy (70%) with France supplying a further 20% of imports. Exports are more evenly distributed with 30% going to Spain, 20% to both France and Germany and the remainder split between a variety of EU and non-EU countries, in proportions ranging from 1% to 6%.

The invoicing practice of the company largely reflects its trade pattern, with a proportion of exports and imports also invoiced in sterling.

	Exports (%)	Imports (%)
British pound	30	15
Spanish peseta	30	3
French franc	20	20
Deutschmark	20	5
Italian lira	–	55
US dollar	–	2

Corporate strategies

The company does not regard it as worthwhile to undertake financial hedging measures due to its regular cash flow and the generally small size of the contracts it is involved in. It does engage in some in-house measures as a means to reduce its exposure to risks arising from foreign currency transactions. These are undertaken as a secondary consideration however, subordinate to other business matters.

The main method the company employs to offset foreign currency transaction risks is to postpone or bring forward foreign currency receipts and to undertake compensatory trade flows. The company is also flexible in the currency it trades in. For instance, it invoices a French trading partner in French francs as this currently offers the best deal to the two firms involved. At one time all invoicing was in sterling, but the perceived weakness of sterling has ended this practice. Choice of invoicing practice now depends largely on the strength of the respective currencies and the preference of clients.

Despite invoicing in a number of currencies the company does not currently hold foreign exchange accounts. This policy is kept under constant review but at present the company regards it as more cost effective and a better use of resources to transfer its currency receipts into sterling and hold all funds in a central account which can then be used for short-term investment purposes. It acknowledges that incurring transaction charges imposes a cost but feels that this is compensated for by the better returns it receives on money held in sterling accounts.

Costs of foreign exchange management

The main transaction cost is incurred from banks' commissions and processing fees which amount to some 1% to 2% of the amount exchanged. The company reports that this has decreased since the late 1980s. The costs for transactions within the EU are not reportedly any cheaper, as costs are volume sensitive rather than geographical. All other costs (administrative and hedging) are less than 0.5% of foreign trade volume. This proportion has not changed since the late 1980s.

Bank transfers from a foreign currency take about seven days longer than if in a local currency. This is the same for both EU and non-EU currencies and has not changed since the late 1980s.

Bank deregulation has improved the overall level of services available, particularly the quality of service, as it seems banks are now more willing to listen to their customers' needs.

Effect of the single market and bank deregulation

The company did not report any noticeable difference in their foreign currency dealings since the advent of the single market or bank deregulation.

Case study E

General information

A textile company with an annual turnover of £10.72 million in 1994, it exports 64% of domestic production, with a value of £6.85 million. It employs 376 workers and, in 1994, imported goods to the value of £1.99 million. It has neither production facilities nor sales offices abroad.

Most exports are to other members of the EU (70%), half of which are sold in Germany. The USA is the second most important single export market for the company (17%). Imports are primarily from the 'rest of the world' (89%) with the remainder sourced from the USA.

The company's invoicing practices reflect its pattern of trade and cover a range of currencies.

Invoicing currency

	Exports (%)	Imports (%)
South African rand	–	57.5
Deutschmark	43.6	1.4
US dollar	20.1	36
British pound	20	5
French franc	11	0.1
Belgian franc	4.7	–
Canadian dollar	0.7	–

Corporate strategies

The company follows two business strategies to guard against fluctuations in exchange rates: financial hedging measures and in-house measures. This strategy is prompted by long-term exchange rate changes, rather than short-term fluctuations. The company tracks movements in the exchange rates of its main trading currencies (ERM currencies, the US dollar and the South African rand). It tends to ignore smaller currency transactions.

The company has an order book of some three to four years in advance and at any one time will have about 50% of this covered by hedging measures, as they only cover for 12 to 18 months in advance. All hedging is by forward exchange transactions, largely for reasons of cost and the payment period of accounts in foreign currencies. It is viewed as the most cost-effective option and is the policy that has always been used. Discounting of bills was employed for a time in the mid-1980s but that stopped as the Department of Trade and Industry moved away from supporting the procedure. The only risk perceived to be attached to current practices is the slight danger that the pound may collapse without warning; all other risks are costed in.

The company acknowledges that forward exchange transactions carry their own risk, particularly if clients fail to pay on time. This eventuality is covered by buying currency on the spot market to cover the immediate liabilities and then rolling the contract forward. The decision to cover foreign currency risks was taken as the company found that it was losing money through currency movements. The company's exposure is assessed on a month-to-month basis to ensure that what risk exists is minimized. The spot rate is examined every day and the company acknowledges that it is getting more professional in its whole approach to currency management and is continually refining its procedures.

The in-house measures undertaken are primarily the netting of foreign currency assets and liabilities and changing the terms of payment through contract variations. The latter is more commonly undertaken at a client's request rather than as a means of reducing exchange rate risk. The company makes a positive effort to try to match credits and debits to its foreign currency accounts (of which it has four: dollar, DM, French franc and Belgian franc) in order to reduce transaction costs. No real costs are perceived to be attached to operating these four separate accounts, other than the time involved.

Costs of foreign exchange management

The largest costs of foreign exchange transactions are reported to be the banks' commissions and processing fees which amount to between 1% and 2% of the amount exchanged. As these are largely flat rate fees this is a function of the volume of currency being exchanged at any one time. Costs for transactions within the EU are not any cheaper than those with other countries, although the company reports that transaction charges within the EU have increased since the late 1980s. This is reportedly due to varying bank practices within the banking system and to the fact that some banks now charge for making credits to an account.

The company employs specific staff for administering foreign currency transactions but the cost of this is less than 0.5% of the volume of foreign trade. Hedging costs are also less than 0.5% of foreign trade volume. Neither of these costs has changed since the late 1980s.

Effect of the single market and bank deregulation

The company did not report any noticeable difference in their foreign currency dealings since the advent of the single market or bank deregulation.

Case study F

General information

A leading petroleum company with operations in the chemical industry sector. The nature of these two markets has implications for the strategy it employs to minimize the costs of foreign currency transactions. As oil is a global commodity priced in dollars, the underlying currency of the petroleum industry is US dollars. Even where this company trades in a local currency, through its petrol retailing and wholesale functions, price movements closely follow movements in the dollar price of oil. Similarly, the European chemical industry is dominated by large German manufacturers. Consequently, the underlying currency in the industry is the DM. The company has chosen to adopt a business strategy based on following the actions of larger industry leaders as it recognizes it cannot influence the underlying currency of the industry.

Corporate strategies

The logistics of refining oil are such that the company is not able to adopt a business strategy based upon the re-orientation of products to domestic markets, alternative export markets or imports towards countries with more stable exchange rates. Consequently, the firm only undertakes financial hedging measures and limited in-house measures based around the netting of its foreign currency assets and liabilities.

The company undertakes a long-term macro-management policy of maintaining its debt denominated in US dollars (about 97%). This reflects the fact that as a group the company has more assets denominated in US dollars than it does in other currencies. As a short-term strategic management position the company nets all exposures across the company, to avoid hedging costs.

The company's strategy has changed since the late 1980s in three main ways:

(a) there has been a greater degree of centralization (leading to more netting of assets and liabilities);
(b) there has been greater standardization within the company (with respect to a common hedging strategy); and
(c) there has been a broader acceptance of risk management within the company.

The company believes that a consistent hedging strategy tends to be largely neutral over the long term, unless in a growing market. For instance, if consistently taking a 100% forward position this is likely to balance out over a number of years (as currencies tend to fluctuate around a mean). The primary focus is how much risk the company is prepared to tolerate, i.e. whether they are concerned by the volatility of exchange rate and the risk associated with the range of movement.

The company finds it more difficult to hedge in the more exotic currencies where there is no developed forward market. In these cases it takes a country-specific approach. For instance, it pre-funded much of its recent investment in Colombia às, until recently, it was attractive to buy the local currency and place it on deposit, as interest rates exceeded exchange rate depreciation.

The company groups its financial exposure by currency against the US dollar. Thus, rather than identify the guilder, DM and Belgian and French francs separately, it uses the DM as a proxy, as the range of volatility between these currencies is perceived to be slight.

They tend to treat sterling as separate, because:

(a) it is outside the ERM and therefore more volatile; and
(b) it is their single largest exposure (as a group they are short sterling because of their North Sea expenditure – they declare and pay dividends in sterling and are liable for Advanced Corporation Tax).

Foreign exchange exposures therefore consolidate down to:

(a) a materially short sterling position; and
(b) country-specific positions in emerging financial markets.

As a group they are long dollars and so determine a 12-month hedging programme for their short sterling position. The company looks at its short-term costs and treats everything as a dollar asset. Everything that comes in is sold for dollars. However, to cover fixed liabilities (dividends, Advanced Corporation Tax) the Group has to buy sterling. They hedge 100% of sterling liabilities over 12 months (about £2 billion). This is done in five discrete chunks, for 12 months at a time.

The company has undertaken a lot of work on analysing the behaviour of the sterling/dollar exchange rate and regards £1:$1.45 to £1:$1.65 as a broad range mean with one standard deviation. Within these bounds the company operates a cylinder to guarantee a worst rate. For example, if the rate was currently $1.55 the company would buy an option at $1.60. At the same time they would write an option for $1.50. The cost of these two actions balance out with the company protecting its position for rates worse than $1.60, but selling any benefit provided if rates fall below $1.50.

This choice of measure is based upon cost, volatility risk and flexibility. They also operate their own dealing room as a profit centre and so aim to gain a financial return on their dealings. The company is unusual in operating its own dealing rooms (enabled by 'big bang' deregulation). This has enabled it to reduce its costs as no longer a single buyer of options but also a writer (dealers have to offer it centre spread as they do not know which side it is coming from). This has increased the risk it is exposed to.

The company operates an international clearing system through its dealing rooms, allowing its subsidiaries to carry only the minimum currency necessary. Each day each national office produces a 24-hour cash position. If there is a need for a foreign currency the central dealing room would then undertake a short-term swap, any surplus would be sold for dollars. This sweep process minimizes the costs of hedging, as it implies global netting of liabilities and assets based on a highly centralized structure.

Costs of foreign exchange management

Each year the company processes about $40 billion but its trading turnover is around $400 billion. Cost is 0.0035%. Hedging costs have reduced since the late 1980s mainly because the DM and sterling are both heavily traded currencies.

Because everything is swept daily there are no bank transfers; the company only has local transactional banks. All currency is moved within single banks.

Case study G

General information

The company is a leading international producer of steel goods. It had a domestic turnover of £4.8 million in 1994 of which £1.6 million was accounted for by exports. It employs 36,000 staff and imported materials worth £1.8 million in 1994.

Two-thirds of exports are directed to the EU with the remainder evenly distributed between the USA and the rest of the world. Due to the distribution of exports (mainly to the EU) they are primarily invoiced in the domestic currency to which the company is exporting, or in DM due to intra-EU steel pricing policies. Outside of the EU steel is a dollar priced commodity and so invoicing tends to be in US dollars. Around 20% of exports are invoiced in sterling, primarily because no suitable (or stable) forward market exists in the local currency. This strategy is largely unchanged since the late 1980s. The company is unable to avoid paying for imports in US dollars as this is the underlying currency of the market.

Corporate strategies

The company's strategy is to gain a significant proportion of the world market over the long term. Consequently, they are willing to service markets even where exchange rate movements could cause financial pain; they do not pursue geographic reorientation strategies.

The company only hedges on a transactions basis, as it feels that there is no strong and consistent relationship between exchange rates and business performance (although they acknowledge that they benefit from a weak pound in relation to other European currencies).

The company follows a global corporate strategy and nets all transactional exposures on a day-to-day basis. It also hedges its foreign currency liabilities by means of forward exchange transactions. It has chosen this method on the basis of cost, technical handling (particularly ease of administration) and the flexibility of the instrument.

It has found that bank deregulation has lowered the effective foreign exchange transactions costs because of a more competitive environment, which has led to a narrower spread. Bank deregulation has not affected transaction costs. The company does not handle EU ERM and EU non-ERM currencies any differently, although it might consider offsetting a long and short position across two ERM currencies due to their limited cross-rate volatility.

As with other large companies it is trying to make a profit out of its hedging activities by trading off long and short and cover/not cover day-to-day positions. It does consider, however, that currency movements are more difficult to manage within the EU (and are thus more expensive) than outside the EU, although it recognizes that these are difficult comparisons to make.

Case study H

General information

A leading footwear manufacturer and retailer, the company has a domestic turnover of around £500 million in 1994, of which £90 million was accounted for by exports. In the same year it imported goods to a value of £110 million. The company employs 14,000 workers and operates multinationally with production and sales facilities in both the USA and ERM countries, together with a sales office in Hong Kong.

In 1994, 58% of exports were sold in the EU, 14% in the USA and a quarter in the rest of the world. Imports are sourced from Portugal (30%), Italy (20%) and the rest of the world. Invoicing practices vary by country. Almost two-thirds of exports are invoiced in sterling, with the US dollar and DM other important currencies. Imports are invoiced in the currency of origin (US dollar, pesetas, Italian lira) or leading international currencies (US dollar, sterling).

Invoicing practice is predicated in the basis of trading patterns. Exports to the USA and Europe are traded in the local currency but elsewhere sterling is preferred, partly because customers expect this but also due to the weakness or non-existence of forward markets in many countries with which the company trades. An additional important factor is the relatively low volume of sales with many individual currencies. This makes it difficult to predict trade volumes in advance and so precludes taking up forward positions in the currency market.

A geographical factor also plays a part in the company's invoicing practices. Asian markets are largely US dollar based and so the company accepts trade denominated in dollars as the norm for this area.

Corporate strategies

The company employs some in-house measures to reduce the impact of exchange rate fluctuations but primarily uses financial hedging measures as its main business strategy.

Although it does tend to net its US dollar assets and liabilities it feels that this has limited potential for other currencies due to the balance of its trade. It is a net spender of lira and escudos (as it is for US dollars), but does not receive significant receipts in either currency against which it could net its liabilities. Equally, flows of other currencies are insufficient to make netting operations worthwhile.

Exchange rates form a part in setting the prices of the commodity as the company considers the cost of resourcing raw materials and selling the final product when setting its advance prices. The company's foreign currency business strategy is to secure and protect the profit margin on expected transactions. The price of the commodity is fixed six months in advance and then kept static for six months. As a result the firm's strategy is based around long-term exchange rate fluctuations as it tries to smooth out seasonal exchange rate movements.

The company will consider reorienting its imports, particularly for non-specialist resources, if exchange rate differentials cause one country to become relatively cheaper than another. This is a marginal consideration as the company is taking a medium- to long-term view and so will only take into account medium-term differentials.

Once prices are set the company uses forward exchange transactions to protect its margins. This nullifies the risk imposed by exchange rate fluctuations, at the risk that the company has mis-forecast the volume of future sales. However, in developing markets the company tends to invoice in sterling, removing both the exchange rate and sales volume risks, while in developed markets (such as the USA and EU) sales volumes are stable and largely predictable. To ease the management of the range of currencies the company acts in, it maintains 19 foreign currency accounts. It uses these as a buffer to smooth the timing of receipts and outgoings, sometimes varying contract timings to minimize foreign exchange costs.

The company covers 100% of all foreign currency transactions through forward exchange transactions. It has chosen this method because it involves no up-front costs, involves no risk to the company and is easily manageable. The company regards the premium it pays over the spot rate, when buying US dollars forward, as an insurance cost, to be offset against a small gain through selling DM forward. It does not have a policy of trying to profit from its hedging activities, as it does not regard financial dealing as one of its business activities, rather it wishes to secure its profit margin.

Costs of foreign management

Management costs associated with this approach are very low. The operation takes two to three days of the company accountant's time per month, plus some part-time clerical support. The company does monitor the spread offered against prevailing spot rates in order to gain the best deal available at the time.

The approach of the company has not changed significantly since the late 1980s, although the process has been more centralized and is now less fragmented than it was previously. Again this is to ease the administrative costs of activities. It has found little difference in the cost of foreign currency transactions or hedging since the late 1980s. It does receive a reduced tariff for payments abroad to suppliers (which it feels are quite expensive) but is unsure if this is due to market pressure from deregulation or the size of the company itself.

Case study I

At the request of IFO an interview was held with a leading UK bank. Unfortunately, it is the policy of this bank, as with others in the sector, not to release any details on their trading or hedging positions. This information is treated as strictly confidential as the volume of trade is such that release of information could influence the market.

Instead, an interview was held with a senior member of the dealing staff who is responsible for the foreign exchange dealings of mid-sized corporations, defined as those with foreign exchange dealings of between £1 million and £130 million per annum. This discussion centred on the actions of UK firms in general in terms of foreign exchange management.

Background

The business strategy adopted by firms with regard to their foreign exchange transactions is variable. It relates to company structure, the underlying currency of the market and to the trading pattern of the company. Most customers choose to undertake fixed forward exchange transactions to secure their foreign exchange exposure, although a minority prefer to use the spot market. Preference for spot market operations tends to occur where:

(a) the underlying foreign exchange business of a company is based on intra-company trading, variations in spot are viewed as 'balancing out' across the group as a whole; and
(b) some firms are able to pass on gains and losses to the customer through price variations.

Where a company sets a fixed-price list in advance of sales it is forced to engage in hedging activities if it wishes to protect its profit margins. The most common approach is through fixed forward exchange transactions, partly because there are no up-front costs but also because it is relatively straightforward to understand. The bank reports that customers are becoming more sophisticated in their awareness of foreign exchange markets – particularly due to the expansion of accessible information on market conditions – and are more willing to explore alternative means of hedging their exchange rate risks in manners which may be more suitable to their business requirements. An increasing part of the market is now being taken by currency options and related hybrids, such as cylinders.

Firms are increasingly looking to foreign markets as the domestic recession constrains opportunities in the UK. Current markets are concentrated on the US and European countries but firms are now looking increasingly towards Asia, particularly in the engineering sector. Invoicing practices, and exposure to foreign exchange risks, are following these trading patterns. Invoicing practices are reported to follow market pressure, firms pay in the currency which customers wish to deal in. For instance, the Chinese and Asian markets are largely denominated in US dollars. Firms have little opportunity to vary from this position if they wish to maintain market share, but they also have the advantage of trading in a stable currency unit.

Costs of foreign exchange management

Costs of foreign exchange transactions and hedging activities are reported to have declined since the late 1980s. The UK banks are actively seeking corporate foreign exchange business and the market is becoming more competitive as a result. The attraction of the foreign

exchange market is that it is classified as an 'ancillary activity' in the UK and so appears as an off-balance sheet item as fee income for banks. Customers are also becoming more sophisticated with knowledge of prevailing exchange rates and international interest rates. They are willing to shop around to obtain the best deal which has resulted in the exchange rate spread being gradually eroded.

The bank does not charge its customers commission charges on foreign exchange transactions and fixed forward exchange transactions carry no up front charges. Firms do pay a hidden cost, however, in that they must pay more for buying forward than if there were a fixed exchange rate. This premium over the spot rate is based upon the interest rate differential between the respective economies.

Companies are increasingly turning to the options market, although this does incur a premium cost and is more speculative. Having paid the initial premium the returns to the company are potentially unlimited, if they choose to redeem the option. Essentially the company buys the right to buy a certain amount of currency at a set rate of exchange at a specified date in the future. It requires more intensive management than fixed forward exchange transactions as the company has to be aware of the direction in which the market is moving. For certain corporate positions options are the preferred strategy. For example, where a company has tendered for a major contract in Asia, with a costing based upon an exchange rate of $1.55, it may choose to take out an option to purchase the necessary dollars after it has learnt whether it has won the contract or not. If it is successful it exercises the option and if not it allows the option to lapse. The cost to the company is the initial premium. In contrast if the company waited until after it won the contract to purchase the required dollars the spot market may have moved against it, whereas if it took out a fixed forward exchange transaction and was unsuccessful in its bid it would be saddled with a future liability.

Increasingly companies are looking to hybrid options (straddles, butterflies, cylinders, etc.). The extent to which companies become involved in more complex forms of hedging depends upon the skills and expertise available to staff.

Other costs are not viewed as significant by the banking sector. For instance, there is no cost incurred when clearing DM debt with francs simply because no exchange commission is charged if both are exchanged to sterling. Payment costs are thus the only significant charges made.

Foreign exchange accounts remain a popular option, depending on company structure, particularly where companies are receiving or debiting small amounts of currency on an ongoing basis. It is not practicable to cover all such transactions and maintaining foreign exchange accounts allows the company to net parables and receivables. A small interest rate does accrue to such accounts and so the costs are largely in terms of management time.

The time horizon of companies varies depending upon their market and their desire to pursue the foreign exchange market actively. While some companies take a long-term view of their future currency requirements, due to long contract periods, others take a shorter horizon and use the market to continuously update their position at beneficial rates. Some companies inform the bank of the company's 'strike level', at which rate the bank contacts the company and offers it the opportunity to buy or sell currency.

The bank was not aware of any companies which took a different attitude to ERM, EU and non-EU currencies. The dollar is the most familiar currency to UK firms, while at least one major public limited company is currently hedging all its DM liabilities as it takes the view that the DM will weaken over the next 12 months. Since sterling left the ERM the bank feels that companies have become more aware of exchange rate movements, but even while in the ERM most companies were aware of the possibility that the mechanism could break and so took out cover accordingly.

The risks of movements are always there, profit margins are tight and companies cannot afford to have unsecured currency fluctuations. Movements even within the ERM are sufficient to weaken a company's trading position and so may require protecting.

Case study J

General information

The company is a manufacturer of scientific instruments, trading largely in export markets. With a domestic turnover of some £30 million in 1994, £21 million went for export, while imports were valued at £3 million. The company employs 400 staff in the UK.

The firm operates production facilities in other ERM countries and has sales offices throughout the world. It in turn is a subsidiary of a North American parent, although foreign exchange is largely handled in the UK.

More than 40% of exports are directed to the EU, primarily Germany and France; there are no single other significant export markets, trade being on a global basis. Three-fifths of imports are sourced from the USA, largely from the US parent. Remaining imports are primarily sourced in the EU, with the Netherlands being the largest single supplier.

Corporate strategies

Invoicing practices vary by country. Imports tend to be invoiced in dollars, Dutch guilders and sterling. Exports are generally invoiced in a choice of six hard currencies. Sterling is the most convenient for the company and this accounts for some 40% of exports, but the company is willing to accept payment in the customer's choice of currency, for instance trade with South America is largely denominated in US dollars. After sterling the company tends to invoice in DM, US dollars, French francs followed by small proportions of other European currencies, reflecting its trading patterns.

The company follows a business strategy based upon financial hedging measures and in-house measures through netting its foreign currency assets and liabilities. This is prompted, in the main, through long-term exchange rate changes although the company reviews its position on a regular basis. It regards fluctuations of all its trading currencies against sterling as important for this strategy and does not differentiate between ERM currencies, EU non-ERM currencies or the US dollar.

The strategy it undertakes does vary by currency. This is dependent upon the underlying structure of the business though rather than perceived exchange rate risk. The company nets all its US dollar liabilities and assets globally. As most of the company's dollar liabilities result through intra-group trade flows, which form nominal liabilities as they are not settled

with the parent, they are not hedged. Equally the company both buys and sells in guilders and so regards these offsetting transactions as a natural hedge and so does not take out cover. In contrast it covers 100% of its DM liabilities 6–12 months forward as this forms the single largest export currency which it trades in and there is a steady flow over time.

The company's hedging strategy is based upon the level of exposure arising out of outstanding debt. As the bulk of its trade consists of high volume low value transactions it is impractical for the firm to cover transactions on a forward basis. Instead, it covers a percentage of the outstanding debt falling due at any time.

On this basis it covers some 60% of its ERM currency liabilities and some 40% of EU non-ERM currency liabilities. As outlined above it does not cover US dollar liabilities, its only other significant traded currency. The reason for the difference is simply that the values outstanding on ERM currencies tend to be higher than on other EU currencies and so the company's exposure is higher. Moreover, ERM nation firms tend to be more predictable in their payment patterns and so the forward market is a viable option. The example given was of an Austrian firm, invoiced in Austrian schilling, which was a notoriously poor payer. The company does not cover this transaction on the forward market as it can never be sure when it will fall due.

The company's hedging policy is based entirely on forward exchange transactions. This is partly due to relative cost, as it views options as a more expensive alternative, and to simplicity, owing to the ease with which it can keep track of forward exchange transactions. There is also a pragmatic element in that the company operates an on-line system for forward exchange transactions with its bank.

Costs of foreign exchange management

The perceived costs of its strategy are regarded as low. It pays no commission or bank charges on foreign currency exchange. It was charged commission by one bank in the past but transferred its business to an alternative which did not impose such charges. Costs are incurred on the spread offered but for large transactions the company will seek competitive rates from different banks and take the best offer. If it makes a currency payment it does incur a remittance cost, but this is separate from the cost of currency transfers.

The company currently operates eight foreign currency accounts, which are not regarded as imposing a significant cost upon the company, other than managerial input. The cost to the company of management time is one manager plus clerical support. Around a quarter of the manager's time is taken up by foreign exchange dealings.

Since the late 1980s the company's business strategy towards foreign exchange management has developed as awareness and skills within the firm have developed. The company now takes out forward cover on a more systematic and regular basis than in the past. It does not treat different currencies in a different manner, rather taking a view on its overall level of exposure in any single currency.

Changes since the late 1980s

The company has also changed the manner in which it makes foreign currency payments. It no longer instructs the bank to make the payment but operates its own foreign currency

accounts, using electronic banking to make the transfer. This is not only cheaper and more convenient but also enables the firm to control when it wishes to exchange currency and so gain the most advantageous rate of exchange. The advent of electronic banking is regarded as the chief reason for the perceived decrease in banking costs since the late 1980s.

Neither the single market nor bank deregulation is viewed as having had a significant impact on the costs of currency transactions.

Since sterling left the ERM however, the company has taken the view that it is more critical to hedge (in its limited fashion) than prior to leaving. It does not differentiate between currencies now, as it regards sterling as moving independently of other currencies. In summary, it undertakes hedging measures (after netting operations) in order to protect its profit margin on known volumes of trade, when it is feasible to do so.

VI. Country report VI: Ireland

VI.1. Objective

The Economic and Social Research Institute (ESRI) was requested by IFO to carry out ten case studies in relation to this project. These studies utilized the same basic questionnaire as was used for the main study in other countries but gave the respondents more scope to amplify and explain their answers. This report summarizes the findings of the case studies. It begins by giving some background information about the Irish economy and the role of foreign exchange transactions in it. It then goes on to discuss the firms selected for interview. The final section describes the main features of the answers received. The detailed results of each interview are presented in anonymized form in Appendix VIA.

VI.2. Exchange transactions in the Irish economy

Exchange transactions have increased massively in importance in the Irish economy over the last 20 years. Up until 1979, the Irish pound traded at exact parity with sterling and thus all transactions were essentially conducted in sterling. On its entry to the ERM in 1979 the Irish pound was allowed to float and has done so since. During that time it has fluctuated in value from a low of 0.79 per pound sterling to 1.10 in 1992. Its present value is about 1.04 per pound sterling. The floating of the Irish pound caused a huge increase in the volume of foreign exchange transactions. Another factor causing a substantial trend increase in these transactions has been the very rapid growth of trade, particularly of exports. This growth has been particularly rapid since 1985. In the ten years 1985 to 1994, the volume of exports has grown by 235% while the volume of imports has grown by 176%. This growth has also involved substantial diversification mainly towards EU countries and away from the UK.

VI.3. Selection of firms for the case studies

IFO had requested that the ten case studies should comprise seven manufacturing firms from a variety of sectors, one multinational, a service sector firm and a bank. In view of the structure of the Irish manufacturing sector, where foreign owned firms account for 42% of employment and 55% of gross output, it was decided to include a higher proportion of foreign firms in the Irish study. The firms in question were selected from an ESRI sampling frame which was pre-sorted by 1994 export levels so as to cover a variety of firm sizes and sectors. The final selection comprised four Irish-owned manufacturing firms, three foreign-owned manufacturing firms, one Irish-owned service sector company, one tourist sector company and a bank. These firms were contacted during July 1996 and interviewed using the IFO questionnaire.

VI.4. Main findings

The main conclusions to be drawn from the interviews will now be described. In this discussion, reference is also made to the study by Whelan and Colgan (1995) which involved a survey of 259 firms regarding their exposure to foreign currency fluctuations. Several questions in this survey were identical to those in the IFO inquiry and its results therefore allow us to put the case studies into context.

Export destinations

The main destinations of the exports of the interviewed firms are reasonably representative of those for Irish exports as a whole. The overall percentages going to various destinations are given by Baker et al. (1995, p. 190):

	%
UK	33
Rest of EU	41
Rest of world	26

The firms interviewed are also typical in that the smaller, Irish-owned firms in the traditional sectors tend to rely more heavily on the UK than do the larger, foreign-owned firms in high technology sectors such as electronics and chemicals.

Invoicing currencies

Probably the most striking aspect of this topic is the relatively small proportion of exports by the interviewed firms which are invoiced in Irish pounds. As the interviews show, sterling and the US dollar are much more common as invoicing currencies than the national currency. Whelan and Colgan (1995) give the following figures for all exports invoiced in various currencies:

Percentage of exports invoiced in:

	%
Irish pound	12.1
Sterling	23.0
Deutschmark	15.2
US dollar	34.6
Other currency	15.1

Imports tend to be invoiced in a narrower range of currencies than exports. A somewhat higher proportion of imports come from the UK and a lower proportion from other EU countries as compared with exports.

Foreign branches

The interviewed firms were typical of most Irish firms in not having branches or subsidiaries abroad. Most Irish branches of the multinationals managed their own hedging operations.

Strategies for dealing with fluctuations

The main strategies mentioned related to financial hedging. This is not surprising since the firms would be restricted from pursuing the other strategies by the small size of the domestic market, the small average size of the firms themselves (which would prevent them from considering major initiatives like setting up abroad) and by the fact that the bulk of the firms are price takers in their foreign markets, so limiting strategies related to pricing. One or two firms did mention

that perceived currency stability was a factor taken into account when choosing which markets to enter or develop.

Important currencies

The two critical currencies for the Irish firms were sterling and the US dollar. The DM and the other ERM currencies were mentioned by only one or two firms.

Extent of financial hedging

The extent to which firms engaged in financial hedging varies enormously. Some firms hedged all their foreign liabilities, others none of them. Whelan and Colgan show that about half of the firms in their sample did no hedging. This proportion was highest among traditional, non-food firms. Organizations in the food and high technology sectors were much more likely to hedge. Given the disproportionate size of the firms in these sectors, however, this suggests that substantially more than half of all foreign liabilities are hedged. Whelan and Colgan (1995) report that about 9% of firms had never heard of hedging. By the far the most common type of hedging was the purchase of forward foreign exchange. Only one firm mentioned another type of hedging, namely exchange rate insurance. This confirms information from the bank interviewed.

Extent of non-financial hedging

Most respondents did not consider the items mentioned in question IV.4 to be 'hedging' which for them had specifically financial connotations. However, quite a number did maintain a foreign currency account, usually in sterling, which allowed them to net foreign assets against foreign liabilities. Some referred to the advantages of invoicing in 'vehicle' foreign currency such as sterling or the US dollar. Practically all Irish firms are price takers on foreign markets which rules out many strategies involving price adjustment. No firms except the bank reported having special staff to handle foreign exchange matters.

Fees and costs

Bank commission was generally reported to be in the region of 1–2% and similar costs were quoted for hedging. One or two firms reported increases in costs but most felt these had not changed much. A delay of three to five days was reported almost universally for transferring from foreign currency to local currency. Again, little change over time was reported in this figure.

Appendix VIA: Detailed results of the case study interviews

Case study A

Type of firm: A small Irish-owned firm in the clothing industry.
Total sales: IR£ 1.5m
Export as % of sales: 17% **Imports as % of sales**: 45%
Employees: 33

Export destinations (%): UK 40; USA 40; other non-EU 20

Currencies of invoicing for exports (%): Sterling 60; US dollar 40. 'We have always invoiced all customers outside the USA in sterling.'

Foreign branches: None

Strategy regarding exchange fluctuations: 'We use financial hedging against sterling and US dollar. We do not feel any other options are feasible for us.'

Currencies in which fluctuations are important: Sterling and the US dollar

Percentage of foreign liabilities hedged against: 100%

Method of financial hedging used: Forward exchange transactions

Other types of hedging used: 'We do not really consider these as "hedging", but we do maintain a sterling bank account for the purpose of netting sterling receipts against costs of inputs purchased in Britain.'

Typical bank commission on foreign exchange: About 1%. This has not changed much in recent years.

Specific staff for foreign exchange administration: No

Costs of hedging: About 1-2%. This has not changed much in recent years.

Delay in transferring from foreign currency to Irish pounds: Usually three to four days. This has not changed much in recent years.

Comment: This firm's orientation to non-UK markets is probably not typical of small firms in this sector. Its products are towards the luxury end of the clothing market which probably differentiates it from other firms.

Case Study B

Type of firm: A medium-sized Irish-owned firm in the food processing sector. It is mainly oriented towards the domestic market.

Total sales:IR£ 35 million.
Export as % of sales: 1.5% **Imports as % of sales**: 36%
Employees: 236

Export destinations: UK 100%

Currencies of invoicing for exports (%): Sterling 100. 'This is simpler for our customers.'

Foreign branches: None

Strategy regarding exchange fluctuations: 'We do not bother to hedge – foreign trade is only a very small part of our total business.'

Currencies in which fluctuations are important: Sterling

Percentage of foreign liabilities hedged against: None

Method of financial hedging used: None

Other types of hedging used: None

Typical bank commission on foreign exchange: About 1–2%.This has not changed much in recent years.

Specific staff for foreign exchange administration: No

Costs of hedging: None

Delay in transferring from foreign currency to Irish pounds: Usually three to four days. This has not changed much in recent years.

Case Study C

Type of firm: A moderately sized Irish-owned firm in the food processing sector.
Total sales:IR£ 5.2 million
Export as % of sales: 57% **Imports as % of sales**: 43%
Employees: 140

Export destinations (%): UK 87; other EU 3; rest of world 10

Currencies of invoicing for exports (%): Irish pound 13; sterling 87

Foreign branches: None

Strategy regarding exchange fluctuations: 'We hedge all the exports denominated in sterling. This has been so unstable in the recent past that hedging became necessary.'

Currencies in which fluctuations are important: Sterling

Percentage of foreign liabilities hedged against: All

Method of financial hedging used: Forward exchange transactions

Other types of hedging used: None

Typical bank commission on foreign exchange: About 1–2%. This has not changed much in recent years.

Specific staff for foreign exchange administration: No

Costs of hedging: About 2%

Delay in transferring from foreign currency to Irish pounds: Usually three to five days. This has not changed much in recent years.

Case Study D

Type of firm: A smallish-sized Irish-owned firm in the electronics sector.
Total sales: IR£ 6.0 million
Export as % of sales: 70% **Imports as % of sales**: 44%
Employees: 70

Export destinations (%): UK 23; France 15; Germany 20; other EU 22; rest of world 20

Currencies of invoicing for exports (%): Irish pound 64; sterling 23; US dollar 13

Foreign branches: None

Strategy regarding exchange fluctuations: 'We have not tried to use financial hedging. We have found that with our markets and our policy of invoicing mainly in Irish pounds, the costs would not justify it in the long run.'

Currencies in which fluctuations are important: Sterling; US dollar

Percentage of foreign liabilities hedged against: None

Method of financial hedging used: None

Other types of hedging used: 'We keep a sterling bank account in order to net sterling receipts against sterling input costs.'

Typical bank commission on foreign exchange: About 1–2%. This has not changed much in recent years.

Specific staff for foreign exchange administration: No

Costs of hedging: About 1–2%

Delay in transferring from foreign currency to Irish pounds: Usually three to four days. This has not changed much in recent years.

Case Study E

Type of firm: A smallish foreign-owned firm in the consumer electronics area.
Total sales: IR£ 5 million
Export as % of sales: 100% **Imports as % of sales**: 24%

Employees: 70

Export destinations (%): UK 34; France 15; Germany 17; Italy 10; other EU 14; rest of world 10

Currencies of invoicing for exports (%): Sterling 5; US dollar 95

Foreign branches: Subsidiary of American multinational

Strategy regarding exchange fluctuations: 'We use financial hedging in respect of about 50% of our sales. Transfers due for repatriation to the US parent company are not translated into Irish pounds.'

Currencies in which fluctuations are important: US dollar

Percentage of foreign liabilities hedged against: 50%

Method of financial hedging used: Forward exchange transaction

Other types of hedging used: None

Typical bank commission on foreign exchange: About 1–2%.This has not changed much in recent years.

Specific staff for foreign exchange administration: No

Costs of hedging: About 0.5 to 1%

Delay in transferring from foreign currency to Irish pounds: Usually three to four days. This has not changed much in recent years.

Case Study F

Type of firm: By Irish standards, a medium to large multinational producing consumer products.
Total sales:IR£ 16 million
Export as % of sales: 91% **Imports as % of sales**: 25%
Employees: 360

Export destinations (%) : UK 21; France 3; Germany 10; other EU 11; rest of world 55

Currencies of invoicing for exports (%): US dollar 100

Foreign branches: Subsidiary of American multinational

Strategy regarding exchange fluctuations: 'The whole company operates on a US dollar basis world-wide. We do not find it necessary to use hedging.'

Currencies in which fluctuations are important: US dollar

Percentage of foreign liabilities hedged against: None

Method of financial hedging used: None

Other types of hedging used: None

Typical bank commission on foreign exchange: About 0.75–1.25%. This has increased somewhat in recent years.

Specific staff for foreign exchange administration: No

Costs of hedging: None

Delay in transferring from foreign currency to Irish pound: Usually four to six days. This has not changed much in recent years.

Case Study G

Type of firm: A subsidiary of a non-US multinational in the pharmaceutical industry. It is a very highly capital intensive operation.
Total sales: IR£ 117 million
Export as % of sales: 100% **Imports as % of sales**: 10%
Employees: 50

Export destinations (%): France 12; Germany 21; Italy 5; other EU 10; rest of world 52

Currencies of invoicing for exports (%): Irish pound 8; US dollar 87; other non-EU currency 5

Foreign branches: Subsidiary of multinational

Strategy regarding exchange fluctuations: 'The whole company operates on a US dollar basis world-wide. We do not find it necessary to use hedging. On a world-wide basis, we do take currency stability into account when deciding where to locate our plants.

Currencies in which fluctuations are important: US dollar

Percentage of foreign liabilities hedged against: About 75%

Method of financial hedging used: 'Mainly forward exchange transactions. We have also used exchange rate insurance to a limited extent.'

Other types of hedging used: None

Typical bank commission on foreign exchange: About 0.75–1.25%. This has not changed much in recent years.

Specific staff for foreign exchange administration: No

Costs of hedging: None

Delay in transferring from foreign currency to Irish pounds: Usually two to three days. This has not changed much in recent years.

Case Study H

Type of firm: A moderately-sized Irish-owned firm in the software sector.
Total sales: IR£ 6.0 million
Export as % of sales: 85% **Imports as % of sales**: 12%
Employees: 50

Export destinations (%): UK 8; France 15; Germany 23; other EU 20; rest of world 34

Currencies of invoicing for exports (%): Irish pound 8; sterling 15; DM 23; other ERM 15; US dollar 23; other currency 16

Foreign branches: None

Strategy regarding exchange fluctuations: 'We make the concessions to established customers of allowing them to pay in their own currency. We find this can have a beneficial effect on our relationship with them.'

Currencies in which fluctuations are important: Sterling; US dollar; DM

Percentage of foreign liabilities hedged against: About 80%

Method of financial hedging used: 'We buy forward foreign exchange cover over about a six-month period.'

Other types of hedging used: None

Typical bank commission on foreign exchange: About 1–2%. 'I think this has increased somewhat in recent years.'

Specific staff for foreign exchange administration: No

Costs of hedging: About 1–2%

Delay in transferring from foreign currency to Irish pound: Usually three to six days depending on the currency. This has not changed much in recent years.

Case Study I

Type of firm: A large Irish-owned Dublin hotel chosen to represent the tourism sector. The respondent found some of the questions difficult to apply to the situation of his organization.
Total sales:IR£ 3.0 million
Export as % of sales: 60% (equals % of non-Irish guests)
Imports as % of sales: Nil
Employees: 41

Export destinations (%): UK 8; France 15; Germany 23; other EU 20; rest of world 34. (Equals percentage of guests from these locations – most would have paid in Irish pounds.)

Currencies of invoicing for exports (%): Irish pound 100

Foreign branches: None

Strategy regarding exchange fluctuations: 'We accept foreign currency on the basis of a rate determined by the current exchange rate in the banks.'

Currencies in which fluctuations are important: None

Percentage of foreign liabilities hedged against: None

Method of financial hedging used: None

Other types of hedging used: None

Typical bank commission on foreign exchange: About 1–2%. 'This has not increased much in recent years.'

Specific staff for foreign exchange administration: No

Costs of hedging: None

Delay in transferring from foreign currency to Irish pounds: Usually three to four days.

Case Study J

Type of firm: This was a large Irish-owned bank. It declined to give details of its own policy and strategy on foreign exchange transactions but it did agree to discuss the general advice it gave to clients in this area and the options it offered.

Currencies offered: All traded currencies

Type of advice on foreign exchange strategy given to clients: Each client is dealt with strictly as a unique case. The bank has produced special documentation etc. to advise clients unfamiliar with foreign exchange operations. The advice given to clients will depend on the nature of their business, size of business, mix of currencies, etc.

Method of financial hedging offered and their costs: The bank offers a wide range of hedging mechanisms, the most common of which is the purchase of straightforward foreign exchange. This may be combined with various option facilities and for different periods. Discounting of currency bills is not common. Factoring and invoice discounting is also rather rare but seems to be increasing somewhat.

Typical bank commission on foreign exchange: The bank depends basically on the bid/offer spread as its source of income. Commission rates are less than 0.5%.

Costs of hedging: Depends on interest rate. Again, actual commission under 0.5%.

Usual delay in transferring from foreign currency to Irish pounds: Delay can be as little as two days but is more typically three to five days.

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